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LECTURES

ON THE

Diseases of the Nervous System,

BY

DR. CLUTTERBUCK.

LECTURE XII.

On the Non-febrile Diseases of the Brain.

Gentlemen,

ACQUAINTED, as you doubtless are, with the varied structure of the brain, and the diversity of functions which it performs, you will readily conceive that it must be subject to great variety in its diseases. Each part of the organ differing in structure from the rest, and performing a different office, must of necessity give rise to a corresponding variety of symptoms; which, if thoroughly understood, would serve to point out the particular seat of disease, or the part of the brain immediately affected. Were the *physiology* of the *nervous system* perfect, we should be able, even during life, to distinguish the diseases of the *cerebrum* from those of the *cerebellum*:—those, again, that affect the different lobes, from one another;—and even those of the minuter divisions of the organ. And thus a strictly scientific arrangement of *cerebral* diseases might be formed, founded on the known structure and uses of the different parts. But we are at present by much too little acquainted with the brain and its physiology, to allow of our proceeding in this way. We know but very indistinctly the uses of any part of the organ; while there are many parts, the uses and purposes of which, we are totally ignorant of. We are of necessity, therefore, compelled to proceed rather *empirically* than *rationally*; taking observation for our guide, and trusting to future discovery, to enable us to proceed in a strictly scientific manner in discussing the subject.

I have before had occasion to observe to you, that although there is an almost infinite diversity in the characters or symptoms of *brain-affections*, depending upon the part particularly affected, the diseases themselves, as to their intrinsic nature, are sufficiently simple, and their treatment equally so. The diseases of the brain, as far as they are understood, appear, (with very few exceptions, and those by no means well ascertained,) to depend upon disordered action of its vessels, and that for the most part of an inflammatory kind. In other words, there are very few of the diseases of the brain that do not depend upon actual inflammation in different degrees and extent, or which may not be traced as consequences of this. Accordingly, the treatment of *brain-affections*, consists almost entirely in the regulation of its vascular action, and that by the ordinary means; modified, as in other cases, by the degree and stage of the disease, the habit of the individual, and other circumstances.

Besides the *acute* or *febrile* diseases of the brain, already treated of, there are a number of others, which are unaccompanied by any febrile state of body, or in which this is only accidental, or of occasional occurrence. These may not the less, however, depend upon inflammation; for the brain, like any other organ, may be inflamed, and even suffer disorganisation in consequence, without the occurrence of pain, or any marked degree of *pyrexia* or *symptomatic fever*: on which account, such affections are liable to be overlooked, or attributed to wrong causes; and improperly treated in consequence; their connexion with inflammation not being seen or understood. This is the case with *epilepsy*, *hemiplegia*, *mania*, and many others; as I shall presently endeavour to prove to you.

Now as, for the reasons mentioned, we are not competent to arrange the diseases of the brain altogether from the seat they particularly occupy, we shall find it best to class them according to the function that is observed to be impaired or disturbed. Thus, there are diseases of *sensation*, diseases of *voluntary motion*, and diseases of *mind* or *intellect*; either of these functions being liable to be

affected singly, or in combination with the others; while the whole of them may be affected at the same time: of all of which, there are numerous examples. In many cases of *palsy*, *sensation* only is lost; in others, the *voluntary power*; and in some, both of these faculties are destroyed at once. In *tetanus*, the *voluntary power* alone suffers; and in *mania*, the *mental*. While, in *epilepsy* and in *apoplexy*, when complete, all the *sensorial* functions are disturbed or suspended together. We may usefully, therefore, arrange the *chronic* or *non-febrile* diseases of the brain, into those of *sensation*, those of *voluntary motion*, and those of *mind*; considering each as occurring singly, and independent of the others; although it will be found, in most instances, that more than one, and often all, the *sensorial* functions, are simultaneously deranged.

1. The first class, then, will be the *diseases of sensation*, to which the term *dysæsthesiæ* is applied by Dr. Cullen and other nosologists. Either of the external senses of *sight*, *hearing*, *taste*, *smell*, or *touch*, is thus liable to be disturbed or impaired, and that in various ways; the source of the malady existing in the brain, and of course, in the particular part of the brain where each sense originates, and not in the external organ itself.

Thus, from disease at the origin of the *optic nerves* in the brain, *vision* may become too acute, or it may be impaired, or be wholly lost; or it may be variously perverted, so that objects are seen double, or altogether imaginary ones perceived. These disordered states of *vision*, may take place either suddenly or gradually; and may continue for a longer or shorter period. I have known an instance of a person who, on waking in the morning, found himself totally deprived of *sight*, which returned again in the space of a few hours. Either of the other *senses* may be similarly affected, and a variety of hard names has been applied to such affections; which if I were to enumerate, it would only have the effect of withdrawing your attention from the thing itself.

Now these different affections all refer themselves to the brain, as the immediate seat of disease; while they consist for the most part in inflammation, partial in extent, and limited to the part in which the individual sense affected originates. That the disease is really inflammation, we can often determine, by the pain present, or other attending symptoms; while, in less obvious cases, we may still venture to infer the presence of inflammation or its consequences; in the first place, because this is quite adequate to the effect; and, in the next, because we are hardly acquainted with any other cause to which it can be ascribed. It is likewise the safest manner of viewing the subject, and can lead to no mistake of any practical importance. Upon this principle, the treatment is very simple, consisting in the employment of *antiphlogistic* measures, accommodated, of course, as in other instances, to the peculiar circumstances of the case, as I have frequently explained to you. I would guard you here against the fallacious conclusion, so often come to, that because *purgatives* or *emetics* are followed by a removal of the complaint, (as is no doubt sometimes the case,) the disease must have its origin in the *primæ viæ*. You can surely understand the good effects of such means, as remedies for inflammation, without the necessity of resorting to this unfounded and improbable supposition. The partiality displayed by some for *mercury*, in many of these cases, is not at all better founded; while very serious injury is often done to the general health, by the intemperate and preposterous use of this deleterious substance. *Counter-irration*, by *blisters*, *issues*, or the like, may be reckoned among the means of cure that are occasionally proper. *Electricity*, also, has been recommended in these affections, especially in *amaurosis* or *gutta serena*, and in *deafness* proceeding from a supposed paralytic state of nerves. This, I believe, has much oftener done harm than good, and is at best equivocal.

The sense of *touch* is liable to be perverted or impaired, as well as the other *senses*. This has been denoted by the term *anæsthesia*. In some paralytic disorders, the skin loses its sensibility, in addition to the loss of muscular power; but I have not observed the skin to be so affected alone. I have seen many instances where severe pain was complained of in a paralytic limb, in which neither *sensation* nor *voluntary motion* existed. The sensibility of the skin is sometimes observed to be morbidly heightened in paralytic affections. The *tic douloureux* is an instance of a morbidly acute state of feeling, as well as actual pain, without any apparent disease in the part where the pain is seated. In this case, the disease probably originates in the brain, at the part where the nerves take their rise. The sensation of an insect crawling over the skin, (*formicatio*,) and that of a cold wind blowing on it, (*aura epileptica*,) so often observed on the approach of an epileptic paroxysm, are examples of disordered *sensation*, the effect of the change taking place in the brain at the time of attack. Many other undefined pains and extraordinary sensations, far more numerous and various, indeed, than can be described, may be similarly explained. Nor are the senses of *taste* and *smell* at all exempt from such morbid changes, to which their appropriate epithets have been applied—(*aghenstia* and *anosmia*.)

Many of the sensations referred to the

stomach, have been classed among *nervous diseases*, and not without propriety; for they, often at least, originate in the brain, just as much as the disordered states of the five senses, which I have already noticed: such as *bulimia* or *cynorexia*, the canine appetite—*pica*, or a desire for inedible things, as chalk and others—*polydipsia*, or excessive thirst. To these may be added, also, *satyriasis*, *nymphomania*, and *nostalgia*; which I need not here define. You have only to refer to nosological writers, to learn their import.

2ndly. The *second* class of these *non-febrile* or *chronic* affections of the brain, are those that respect the *voluntary power*, and which have been technically characterised by the term *dyscinesiæ*. The power of voluntary motion may be either impaired or lost; as in the different degrees and varieties of *palsy* originating in the brain. Or it may be exerted involuntarily; and that in a fixed or permanent way, as in what is called *spasm* or *cramp*, the highest degree of which is *tetanus*; or the involuntary contraction may be quickly succeeded by relaxation, and the contraction again as quickly renewed; and so on: which has been called *convulsion*, to distinguish it from permanent contraction or *spasm*. Of this *convulsive* affection of muscles, we have the examples of *epilepsy*, *hysteria*, and *chorea*, as the chief.

3dly. The *third* class embraces the affections of the *mind*, the *vesaniæ* of Dr. Cullen; the principal varieties of which are *mania*, *melancholia*, and *hypochondriasis*; to which may be added, deficiency or annihilation of mental power, termed *amentia* or *idiotism*. Of all these, there are innumerable shades, that defy at once enumeration and description.

Of the various affections of the brain now alluded to, the pathology or general doctrine is nearly the same; and sufficiently simple. They are all to be considered as *local* diseases of the brain, differing from one another in regard to the precise seat they occupy, and upon which difference of seat the difference of symptoms depends. The ascertaining the particular seat of disease in these cases is, however, of no moment in regard to practice. You will not err much in referring them all, more or less, to inflammation as their cause. In some, inflammation is still subsisting: others of them result from the alterations in structure, which inflammation, and this alone, can produce. Such is *epilepsy* when confirmed, and *mania*, and many others.

Now in treating these affections, you are always first to endeavour to ascertain whether inflammation is still existing; because, if such should be the case, the removal of this is the primary, and almost the sole, object of practice. This is to be determined in the ordinary way; that is, by inquiring into the feelings of the patient; the signs there may be of excited or disordered circulation about the head; and the state of the general system. Thus, inflammation of the brain, or its membranes, is indicated by heat of head, flushing of the face, suffusion of the eyes, and throbbing of the arteries within and without the skull. Pain, of itself, as you know, though a positive sign of inflammation in many cases, is yet an equivocal one; as there may be, and indeed often is, inflammation without *pain*, as there may be *pain* without *inflammation*; but, taken in conjunction with other signs, *pain* may be much relied upon. *Pyrexia*, or a febrile state of system, is an unequivocal sign of existing inflammation; while the seat of pain, and the disorder of particular functions, serve to mark the organ affected. The first sign of *symptomatic fever* that appears, and which serves to point out the slightest degree of febrile action, is a furred state of the tongue: to this, therefore, a constant attention should be paid.

With signs such as I have now described, you can not easily overlook the presence of inflammation; and having ascertained this point, the line of practice is plain, as it is that which is proper in inflammation in general; subject, of course, to modifications, according to the circumstances of the individual case. But at the same time, you are to bear in mind, that the presence of febrile symptoms, is not essential to inflammation. The brain, like any other part, may be inflamed, and the disease proceed so slowly, and in so quiet a way, as not perceptibly to disturb the general system; nor even to increase sensibly the vascular action of the neighbouring parts. In such a case, disturbance of function is our only guide; but it is at the same time one that will rarely deceive us, especially if the disease is recent. In long-standing diseases of the brain, such as *epilepsy* and *mania*, there may be no reason to suppose the existence of inflammation. But even in these, especially the former, the paroxyms and exacerbations are probably to be ascribed to occasional vascular excitement, not very remote from actual inflammation. In all doubtful cases, it is better to suspect the existence of inflammation, and to act upon such supposition; because, if the conclusion is erroneous, no serious evil will result from the mistake, provided you act with the requisite caution; whereas the overlooking of inflammation, and the neglect of it in practice, may lead to the most fatal consequences. Again, let me impress on your minds, that in directing your attention so strongly to inflammation, as being generally either the present or the remote cause of the symptoms, I am not inculcating the em-

ployment of *blood-letting*, as the universal remedy; on the contrary, there are innumerable instances where this is not at all required, and where remedies of a very different kind are called for. Still, even in the use of other means, it may be a great advantage to know, that the disease you are about to treat is founded in inflammation of a particular organ.

Having thus given you a general outline of the *chronic* or *non-febrile* affections of the brain, it will be proper to enter somewhat more largely on the consideration of particular subjects, on account of their greater relative importance, and the frequency of their occurrence. I shall begin with *apoplexy*.

Definition of apoplexy. Apoplexy may be defined "a loss of consciousness, feeling, and voluntary motion;" in other words, a suspension of the proper functions of the brain, the *sensorial*, as they are called. The terms *carus*, *catuphora*, *catalepsy*, and *coma*, have been applied to different degrees and forms of the apoplectic state.

This definition applies tolerably well to the disease in its most perfect form. But there are degrees of this, as of other things. There are many cases of apoplexy, where a considerable share of *consciousness* remains to the patient; and the same with respect to the powers of *sensation* and *voluntary motion*. This affection of the *sensorial* functions in apoplexy, while the other great functions of *circulation* and *respiration* continue to be carried on, often with little change, warrants us in referring the disease to the brain, as its primary and essential seat.

The mode of *attack* of apoplexy, is considerably different at different times. Sometimes it is sudden and unexpected. The patient, uttering perhaps an exclamation of some unusual or painful feeling in the head, drops down insensible, without previous complaint. In general, however, (and probably the same would be found in all cases, if minutely examined) the approach of the disease is indicated by certain premonitory signs, which it is desirable you should make yourselves acquainted with; because, by endeavouring to obviate and relieve them, the attack may sometimes be warded off, and the disease altogether prevented. These signs consist, for the most part, of some imperfection or disorder in one or other of the *sensorial functions*; such as imperfect or irregular *vision*; deafness, or noise in the ears; numbness, or unusual sensations in the limbs; weakness of the voluntary muscles, often observable in the muscles of speech, rendering articulation difficult; impaired memory, or other of the mental faculties; an unusual disposition to sleep, (*lethargy*) and *incubus* or *night-mare:* in some cases, violent and long-continued or frequently repeated headache, precedes the attack of apoplexy.

In general, in apoplexy, the *pulse* is full and strong, and beats slowly. Sometimes, it does not deviate materially from the natural state. In extreme cases, the pulse is small, feeble, and irregular: and, in these, the disease in general quickly proves fatal. *Respiration* corresponds, for the most part, with the action of the heart: if this beats slowly, *respiration* is commonly slow also, and accompanied with *stertor* or loud snoring. There is occasionally *deep sighing*. The pupils are mostly dilated, but sometimes the reverse. Sometimes they are observed to be dilated and contracted alternately, in quick succession, and without the influence of light. The face is generally flushed, and often bloated in appearance; and the features are relaxed. The stools and urine are sometimes discharged involuntarily.

The *duration* of the apoplectic state is very various. Sometimes, even though complete, it goes off in a few minutes; or it may continue for many hours, or even days. But if there is no remission of symptoms for 24 hours, the disease commonly proves fatal. Sometimes, again, the stupor takes place gradually, and increases from hour to hour, till it becomes complete. In this case, also, the patient generally dies.

The *termination* of apoplexy is various. Many cases prove immediately fatal; some, after a few hours; or the patient may survive for two or three days. Many cases, again, go off completely, no ill consequence remaining behind: this, we shall find, depends chiefly upon the nature of the exciting cause. A large proportion of instances of apoplexy, terminate in palsy in different degrees; as will be hereafter pointed out.

Exciting causes. Apoplexy often takes place without the application of any obvious immediate cause, though it may generally be traced to some remote cause, giving a *predisposition* to the disease. The obvious or immediate causes of apoplexy, where they can be ascertained, are many, though they mostly operate ultimately alike. It is, however, of importance to be well acquainted with them, and, as far as possible, their mode of acting: as the treatment of the disease is subject to considerable diversity, according to the nature of the cause inducing it.

1. The first head of *causes* are external and mechanical, such as fracture of the skull, with depression of a portion of bone; or extravasation of blood immediately beneath the part injured. *Concussion of the brain*, from falls or blows, belongs to this class.

2. *Diseases of the brain itself*, producing rupture of blood vessels, followed by extra-

vasation of blood—accumulation of serous fluid in different parts of the brain—tumefaction of the diseased part in different degrees.

3. *Mental emotions*, of different kinds.

4. The excessive use of *narcotics*, as *alkohol*, *opium*, and others of the same nature; these are mostly applied to the stomach, but they are likewise capable of producing their effect when applied to other parts, either external or internal.

5. A *dependent posture* of the head, impeding the return of blood by the veins. This rarely produces the effect, unless where there is already a *predisposition*, or strong tendency to the disease.

6. Other causes offering an impediment to the return of blood from the head; such as compression of the veins of the neck, by tumours or otherwise: thus it is, that *bronchocele* sometimes induces apoplectic symptoms. Violent *coughing* also, and straining to vomit, and great muscular efforts of all kinds requiring that respiration should be suspended, endanger apoplexy, by the temporary obstruction they occasion to the return of blood by the veins. In the same way, diseased lungs, and other diseases in the chest, by affording an obstacle to the free passage of blood through the lungs, cause at length an impediment to the return of venous blood from the head, as well as other parts; and that by a succession of changes, which you will find no difficulty to understand. For if the blood, from any of the causes mentioned, cannot find its way readily through the lungs, the right ventricle of the heart must soon become overloaded, so as to be unable to receive further blood from the auricle; and this again from the *superior vena cava*; till, at length, the blood stagnates, in greater or less degree, in the sinuses of the brain itself; which thus, in their turn, become unable to receive the blood from the cerebral veins.

7. *Constriction of the capillary vessels* on the surface of the body by *cold*, is occasionally followed by apoplexy; which, indeed, is always observed to be frequent in its occurrence, in the winter season when severe. The exact way in which this operates to produce the effect, is not very clear. I shall again advert to this point. The constriction of vessels on the surface, that takes place in the *cold stage* of fever, is somewhat analogous to the effects of *cold*, and is often accompanied with apoplectic symptoms, in greater or less degree; and it is probably to be explained in the same way.

Predisposing causes of apoplexy. Many of the causes I have enumerated above, do not at all times produce their effect: but require, for the most part, that a *predisposition* should exist, to favour their action. Thus, mental emotions, a dependent posture of the head, coughing, vomiting, or the application of *cold* to the surface, do not in general give rise to apoplexy, but only under peculiar circumstances.

Apoplexy rarely occurs at an early age, nor in general till after the middle period of life. A very large proportion of old people die of apoplexy; which is induced often in such by slight and trivial causes. The form of body may predispose to the disease; as a large head, short neck, and great corpulency. A sedentary and luxurious mode of living;—long and intense thinking, especially when attended with anxiety of mind; and habits of intoxication; are also among the *predisposing causes*, and serve to account for the more frequent occurrence of apoplexy in men than in women. The suppression of accustomed evacuations, and of habitual diseases, appears, likewise, to predispose to apoplexy.

The theory of apoplexy will next engage our attention. But this would carry us to too great a length at present, and must make the subject of a future lecture.

AN

INTRODUCTORY LECTURE

TO A COURSE ON THE

STRUCTURE AND FUNCTIONS

OF THE

HUMAN BODY,

Delivered at the Dublin Mechanics' Institution by

THOMAS M'KEEVER, M.D.

THE object of the following short course of Lectures is not to make you anatomists. Such a proposal would be altogether misplaced in this Institution, besides being incompatible with the duties of your varied pursuits and callings in life. The plan I propose to follow, is simply to give you, in as concise and as perspicuous a form as I am able, such a general view of the structure and functions of the human body, as may enable you to form some idea of the mechanism and skill displayed in the construction of this curious and complicated machine; and, in the second place, to offer such suggestions on the subject of health, as may enable you to shun those several sources of disease to which, as artists, you are peculiarly exposed, and thus enable you to preserve unimpaired the greatest of all earthly blessings, without which, riches,

honours, and every other gratification, must prove joyless and insipid.

I am fully aware of the difficulties attendant on the judicious arrangement of a popular course of Lectures on the subjects to which I have just alluded; for it professes to explain the structure and functions of the living body to those who are supposed to be unacquainted with the usual preliminary and collateral branches of knowledge. Besides, it must be manifest to every one, that it can be by no means an easy task to condense within the compass of a few Lectures, a satisfactory view of so important and extensive a subject. I trust, however, that the consideration of these difficulties will readily extend to me your kind and liberal indulgence. But that such a course of lectures, if properly conducted, must prove interesting, need, I conceive, be hardly insisted on. There exists, in fact, in the human mind, a natural desire to become acquainted with the intimate structure of this organised mass with which we are enveloped; and we shall find, that the more its mechanism is examined, the more must we admire the excellence of the workmanship, the delicacy of contrivance which it displays in every part. The most ingenious of human inventions, when compared with the animal frame, indicate, in truth, a poverty of contrivance, which cannot fail to humble the vain pretensions of man. Surely then, there are few who will not feel desirous of possessing some general knowledge, at least, on a subject possessed of so many sources of attraction. Indeed, when we take into account the active spirit of curiosity that prevails within us, we can only wonder at the apathy and indifference which many feel to be informed on such subjects. How strange should we consider it in a man who occupied a spacious and beautiful residence, if we found him wholly unacquainted with its general arrangements, the number of apartments it contained, its various divisions and subdivisions; yet we are content to occupy this clay-built tenement of ours for forty or fifty years and upwards, without knowing as much as the simple mechanical contrivance, by which we are enabled to raise our hand to our head. This perhaps has been in part owing to the natural aversion men feel to inspect the human body after life has become extinct; partly, also, to the vague unintelligible nomenclature in which this branch of knowledge has been so long enveloped, and which has been so aptly described as the pride of the anatomist, and the disgrace of his science. It should be kept in mind, however, that the examination of the human body is not indispensibly requisite to enable us to understand the leading and more important functions of our frame. So far as physical organisation is concerned, however humiliating may be the reflection, man, the lord of the creation, differs but little from a number of the inferior animals with which he is surrounded; the immaterial imperishable spark that dwells within him, constitutes his grand and leading claim to superiority over the brute that perisheth, and entitles him to rank with a more exalted class of created beings. Hence it is proposed, in the following Lectures, to avail ourselves of this remarkable analogy in structure, and to draw our illustrations of the several elementary tissues altogether from the anatomy of the lower animals.

The observations I have just made apply to all: to you, as mechanics, the structure of the human body, owing to the many instances of curious yet simple contrivances for effecting motion which it presents, must prove peculiarly interesting, and may, perhaps, be the means of suggesting some improvements in the construction of the several branches of machinery connected with your immediate occupations. In proof of what I here assert, I may mention that Mr. Collinge, an ingenious London artist, happening one day to divide the leg of a fowl, was struck with the accuracy with which this spherical surface, which you observe here, was fitted to the cup or cavity intended for its reception, and the idea occurred to him, that a hinge constructed on similar principles might be attended with considerable advantages, as in this case the whole of the bearing would be distributed equally over the interior of the socket, and not exerted altogether on the surface, as in the common hinge. Accordingly, Mr. Collinge had hinges manufactured after this manner, and found his expectations realized to their fullest extent. They are now, I understand, much used in London, and are found particularly serviceable in windmills, the rudders of ships, park gates, and other heavy pieces of machinery. I have inquired at several of the shops in town for those ball and socket hinges, but have not been able to procure one, so that I fancy they have not as yet made their way into this country. The same ingenious artist has taken another hint from the structure of the joints of animals. Joints, you may observe, are besmeared with a tenacious slippery kind of fluid, not unlike white of egg, termed synovia, or, in common language, joint oil, a far more expressive appellation. Mr. Collinge has added to his larger hinges, particularly those intended for massy gates, a contrivance by which they are kept constantly supplied with oil, while the superfluous portion is allowed to escape by a small aperture in the bottom of the cup.

But the consideration of such subjects is calculated to serve a higher purpose than

those that have been enumerated. By opening to us a rich and inexhaustible field of inquiry, abounding with objects of the highest interest, and involving the most important concerns of humanity: by disclosing the most sublime views of the magnificent plan of the Creator, in the construction of animated beings in general, and of that transcendant power and intelligence that can pursue to its remotest terminations, the immeasurable chain of causes and effects which are instrumental in the accomplishment of its benevolent purposes; it is thus calculated to awaken within us feelings of the most exalted and dignified character. In the contemplation of the exquisite contrivance, the beautiful adaptation of means to ends, so strongly displayed in all the phenomena of organic being, man naturally feels his affections elevated to the contemplation of the great source of all that is fair, sublime, and good, in the creation. Further, may I be permitted to observe, the study of the structure of our frame, by showing us how nearly alike we are all formed, that we have been all cast in the same mould, fashioned by the same all-powerful hand; and that the heart of the prince and the peasant both pulsate after a precisely similar manner, is admirably calculated to make us more tolerant towards each other, more disposed to make allowance for each other's follies and failings, and thus unite the great brotherhood of mankind, however they may be separated by climate or by creed, more closely within the sacred bands of amity and good will. With regard to the second part of the course, or that which relates to the health of the working classes, it may, perhaps, be well I should be more explicit. In this department, then, I purpose confining myself to some general observations on the necessity of attending to your general habits, your diet and regimen, the ventilation of your apartments, warmth in your clothing, but, above all, to the strictest temperance in the use of spirituous liquors, without which precaution it is utterly impossible you can ever expect to enjoy anything like a tranquil uninterrupted state of health. Such diseases as are incidental to each branch of trade shall be then noticed, and the best mode of *obviating* them laid down: the practical treatment of these complaints would, it is obvious, be altogether foreign from our present purposes. I have been induced to turn my attention to this subject, in consequence of the numerous instances I have met with, where, from an ignorance of the manner in which the noxious agents with which we are surrounded, operate on the healthy frame, men have been led into the indulgence of habits of the most pernicious and dangerous tendency. And too frequently, when on the bed of death, have I heard them deplore the sad consequences of those practices, by which their health had been irretrievably destroyed. In truth, it is with health, as it is with time, we take no note of it but by its loss. How rarely do we find mankind spend a single thought on the preservation of this invaluable blessing, until it is too late to reap any benefit from advice: and, like time, only know its value when it can no longer be thought of but with fruitless unavailing regret.

That objections have been made to the introduction of topics of this description before a mixed assembly, particularly such as I have now the honour to address, I freely admit; but on what grounds such difficulties have been advanced, I am wholly at a loss to conceive. The day has happily at length gone by, when it could be considered unsafe to disseminate useful knowledge among every portion of the community. The operative class, from whom are derived so many of the wants, the comforts, and luxuries of civilized life, who constitute, in fact, the great key-stone of the social arch, have at length arisen from a long and inglorious slumber; they have thrown aside the load of mental torpor with which they have been for so many ages oppressed, and have taken that station in the great republic of science to which they have such strong, such irresistible claims. Gratifying, indeed, must it be to every well-wisher of the human race to find, that not a single circumstance has as yet occurred that could cause us to regret their enjoyment of this valuable privilege. The state of science and literature, as they have hitherto existed among mankind, has been likened, by an elegant historian, to a statue of gold, confined within the recesses of a costly temple, to the inspection of which none but the opulent nobles of the land were permitted to have access. But we have had the good fortune to live at a period when this rare and valuable deposit has been not merely withdrawn from its secret antiquated abode, but has been melted down, fashioned into useful coin, which must, in a short time, circulate freely among all classes of the great community of mankind. Circumstances may, for a time, retard the advancement of a mechanics' institution in this city, to its full state of maturity; but it is manifest, from the rapid diffusion of scientific attainments which is taking place around us, that in some form or other it must continue to exist; and I trust the period is not far distant when the various sources of knowledge and of intellectual acquirements may be laid open for the relaxation and instruction of the working classes of this extensive city, and that they will here be invited to the contemplation of the interesting laws of Nature and of Providence—of the

animal, mineral, and vegetable world—of chemistry and natural philosophy—in short, to the acquirement of every branch of knowledge that can adorn the mind, regulate the passions, or in any way improve our condition as social and rational beings.

An intimate acquaintance with all the subjects just enumerated, would no doubt be altogether incompatible with the necessary toils and active offices which Providence has assigned to each of you in your respective situation in life. But there are none to whom a general knowledge will not prove advantageous, by opening and enlarging the understanding, exercising and strengthening the intellect, and imparting to the mind habits of attention and investigation, at the same time that they will afford you a most agreeable and rational source of enjoyment after the fatigue and toil of the day; while the study of some in particular may not only tend to effect those desirable purposes, but may be the means of furnishing you with information that will enable you to extend the boundaries and improve the condition of the particular manufacture in which you may happen to be engaged; and when old age shall arrive—when no longer able to encounter the active business of life, such studies will afford you an unfailing fund of innocent and harmless amusement, and thus enable you to bear up against that languor and weariness so often incident to the evening of our days. But the advantages will not rest even here. I think I do not overrate the importance of mechanic's institutions, when I assert, that on their success depends, in no small degree, the moral regeneration of the upper ranks in society. When the listless votary of fashion comes to find, that the calm and tranquil pursuits of science have opened up to you sources of enjoyment superior to all that the indulgence of a restless curiosity, and craving desire for diversified sensual gratification could procure, he may naturally be induced to try the experiment. The haunts of idleness and of dissipation will in time become deserted, and instead of being the prey of every loose desire, a taste for the more delicate, refined, and lasting resources of intellect will spring up, and ultimately take possession of his mind. Thus you will have the satisfaction to think, that in the hands of an all-wise Providence you have been instrumental in effecting a revolution more glorious and more to be desired than the most illustrious warrior has yet been able to accomplish.

Before concluding these few preliminary observations, I conceive it my duty to take this opportunity of making my acknowledgments to a distinguished member and patron of this Institution, for the very handsome and liberal offer he has made of such plates and preparations as may be required during the ensuing course. I need hardly mention, that the gentleman to whom I allude is Doctor Macartney, the celebrated Professor of Anatomy in our University.

And now, having said thus much by way of preface, I proceed at once to the subject matter of the course.

Were all the known objects diffused over the surface of this earth submitted to the examination of a certain number of individuals accustomed to nice and patient investigation, but altogether ignorant of any arrangement hitherto proposed, there can, I conceive, be but little doubt, that the same classification would be adopted by all, and that they would be divided into three grand assemblages, namely, minerals, plants, and animal bodies, such being in fact, for the purposes of description, at least, the most convenient distribution that could be adopted. Thus there is no difficulty in distinguishing this mineral body from this plant, or this plant from a horse, an elephant, or any other quadruped. Yet when we come to examine the confines of those several kingdoms of nature, we find so nice are the shades and gradations, so gradual are the transitions from one class of bodies to the other, that objects frequently present themselves to which it would be difficult to assign their proper compartment.

Minerals are no doubt more readily distinguished from vegetables, than vegetables are from animal bodies. Yet, there are many points in which they agree. For instance, this mineral substance termed asbestos, bears considerable resemblance to a piece of wood: it is flexible, has a fibrous texture, and may be split into very fine delicate filaments; indeed, the industry of man has contrived a method of working this mineral; it has been employed in a variety of manufactures, principally of cloth and paper. I believe the method adopted by the ancients of working this substance, is at present unknown, except to the Chinese; but we are assured on the authority of Pliny, that cloth made of it was held equally precious with the richest pearls: probably owing to its incombustible nature, as when subjected to the fire it suffers little or no change. Pliny also informs us that he had napkins made of it, and that on their removal from the table, soiled, they were thrown into the fire, by which means they were more effectually cleaned than if they had been washed in water. In the Royal Institution of London there is a handkerchief, a foot long and half a foot broad, made of this curious production. The Chinese to this day set a very high value on cloth made of asbestos, a piece of twenty three inches long being worth near forty pounds of our money. This specimen also, of fibrous sulphate of lime, possesses an

arrangement not unlike this muscle. But notwithstanding these points of resemblance, the distinctive characters between the organised and inorganic kingdoms of nature, are sufficiently obvious. Thus, both plants and animals possess an internal vascular arrangement, a regular system of tubes or ducts, something similar to what you may observe in our streets for conducting gas, by which their nutritious juices are distributed throughout their several structures—and by means of which their sustenance, development, and reparation, are maintained. Animal bodies, I may observe, may be injected readily, either with mercury or any coloured fluid, but vegetables require to be left for a few days after their removal from the earth, in order to allow their juices to evaporate. The onion is one of the readiest for this purpose: it may be done by making an opening in its bulbous part, and then introducing some quicksilver, which, when pressed on, will readily pass into the vessels; a very fine injection may also be thrown in by means of a syringe. Nothing similar to this can be observed in the class of bodies termed minerals. In their mode of formation also, living and dead matter differ widely; while minerals are produced as it were fortuitously, or by the casual juxtaposition of the different particles that enter into their composition; animals and vegetables can only be produced by generation, that is by a system of organs contrived for this express purpose, and regulated by laws peculiar to themselves. Mineral bodies readily undergo alteration, either by some mechanical power separating their particles, or some chemical agent modifying the affinities of their elements; but organised bodies are enabled by the superior influence of what is termed the vital principle, to resist the operation of external agents. Thus, from the moment a plant springs from the seed, till it ceases to vegetate, although it is continually receiving an accession of new matter, and giving out a part of its former composition, yet, its identity or individuality, if I may so term it, is all this time preserved. The same, in a still higher degree, takes place in animals. Lastly, mineral substances can be decomposed and again combined, so as to present precisely their former characters: but organised matter, although we can decompose it, and in this way ascertain its chemical composition, cannot be recombined, so as to present us with the same individual plant or animal; in a word, dead matter is capable of decomposition and of recomposition: living matter is capable of decomposition, but cannot be again recomposed.

Between the two organised kingdoms of nature there exist a number of striking and beautiful points of analogy; in several instances indeed the resemblance is so very remarkable that naturalists to this day are not quite decided as to the compartment to which some bodies belong: hence it has been supposed, that all artificial arrangement is unnatural, and that Nature passes so slowly and imperceptibly from one class of organised beings to the other, as to render it wholly impossible to pronounce where the one terminates, and the other commences. I shall first enumerate those points in which they agree, and shall afterwards mention those characters by which they may be distinguished.

In the first place, both plants and animals, as I have already mentioned, possess an internal vascular arrangement, through which those fluids circulate on which the continuance of life depends. This is obviously indispensable, as the materials composing even the most simple animal or vegetable, are not permanent, but are suffering continual waste; to recompense for which, substances termed food are taken into their bodies, which afterwards become a part of their solid structure. The incubated egg is a fine example of a great number of new materials being formed out of the same substance, the albumen. Here we have all the different tissues of the body: brain, muscles, nerves, artery, all formed from this simple substance.

In the second place, they are both possessed of the power of secreting, that is, of forming substances altogether different from those that exist in their circulating juices. Thus, animals form bone, muscle, artery, nerve, and other component parts of our frame from the blood; plants form oils, gum, resin, sugar, and a variety of other substances from the sap. Indeed, most plants are possessed of fluids peculiar to themselves, as the poppy, which affords a milky secretion. In their mode of respiration, that is, of acting on the surrounding atmosphere, there is also considerable resemblance. All organised beings, it may be observed, require more or less the presence of atmospheric air for their subsistence, or at least, for the due performance of their vital functions. In some of the inferior animals, as insects, numerous openings are distributed over the surface of their bodies, by which the air obtains admission; but in those of the higher orders, there are peculiar organs called lungs, or gills, through which air, or water containing air, enters; vegetables are also possessed of air-tubes, and of pores, opening on their surface, through which the benefical influence of the atmosphere is imparted to the fluids which are circulating through them. According to the experiments of Ingenhouz, atmospheric air enters at the superior surface of the leaf, and escapes at the inferior; hence, the upper surface of the leaf constitutes the organ of re-

spiration, on which the sap is exposed: a thin pellicle being interposed between the termination of the minute vessels, and the surrounding air. It is on this account that some aquatic plants, as the water-lily, have the lower surface of their leaves floating on the water, while the upper surface remains dry in the air. During this process, unless while under the influence of sunshine, a precisely similar change is going on as takes place in animal bodies, that is, the oxygenous portion of the atmosphere is absorbed, and becoming converted into a precisely equivalent quantity of carbonic acid gas, is discharged during expiration.

Sleep affords another point of coincidence. All organised beings, after a short exercise of their functions, become languid and exhausted, requiring tranquillity and repose before they are again fitted for the performance of their several offices. The corollæ of plants are well known to roll themselves up at certain hours, and after remaining in this state some time, again expand themselves. Any one who will take the trouble to examine the plants of a garden at night time, with a lantern in his hand, will find several of them in this condition. This has been attempted to be explained, by supposing that the heat expanded the plant during the day, and that on the removal of this stimulus the parts collapsed. The same changes, however, are found to take place in a hot-house, where the temperature is at all times uniform. Du Hamel, a distinguished naturalist, made some interesting experiments for the purpose of deciding this point. He took this plant (the mimosa pudica) which, at a certain hour of the evening, shuts its leaves, and again at a certain hour expands them. He put it in a leathern trunk, covered with woollen blankets, and found that the leaves closed and expanded in a precisely similar manner.—Plants are also possessed of irritability, that is, the power of contracting on the application of a chemical or mechanical stimulus. This property, indeed, is possessed in a greater or lesser degree by every organised being with which we are acquainted. This plant affords a remarkable instance of it; you see that on the slightest application it withdraws itself, as if to avoid the cause of irritation. Now compare this with the action of this muscle, when I irritate it; you observe how similarly they are both affected. All the trefoils contract their leaves on the approach of a storm, and are hence employed by the peasantry as a kind of natural barometer.

Irritability in animals is said to depend on the nerves going to supply the part; this appears doubtful, as it evidently can exist independently of the nervous communication. The fibrine of the blood, for instance, which we can hardly suppose to be affected by the nervous power, is susceptible of this property after its removal from the body.—Hence one of two conclusions appears unavoidable; either that the irritability of plants and of animals must differ materially in their nature, or that if similar, the presence of nervous matter is not an essential requisite for its production. Chains of individuals having a mutual connexion are very common in the animal kingdom, as in the polypi, many of which, although usually considered as simple individuals, as one animated system, should rather be viewed as constituting a congeries, or collection of living beings, a species of society in fact formed for mutual support and protection. The same may be observed in some plants. The common mentha has a running root, which ties together a number of plants that are in other respects independent of each other. After these commuting roots are divided, they are capable of continuing their existence, altogether independant of them. If we look to external characters, although you might suppose this the readiest mode of distinguishing those two classes of living beings, we find a number of instances where the resemblance is so strong as to perplex, in no small degree, the efforts of naturalists to arrange them. Thus all the actiniæ, or animal flowers, bear so strong a resemblance to plants, that until they were investigated by one of the most patient and diligent naturalists of these countries, Mr. Ellis, they every where ranked as vegetable bodies; and it is a curious fact, that some of this class of animals actually change their colour during the summer months, as if for the purpose of keeping up the analogy.

The locomotive faculty, that is, the power of moving from one place to another, was at one time supposed to constitute the most satisfactory mark of distinction between plants and animals. But there are many animals, as the polypus, the oyster, and the actinia, that I have just alluded to, that remain fixed, or nearly so, to the same spot during their entire lives, subsisting altogether on those smaller animals that are cast in their way by the agitation of the surrounding waves, while there are a number of plants that possess the power of spontaneous movement to a considerable extent. There is a very curious plant termed dionæa muscipula, or fly-trap, that secretes a sweetish fluid on its leaves, not unlike honey, by which flies are attracted; immediately on being touched, the leaf contracts, and being of a thorny prickly nature, the animal is crushed to death, as if for its temerity. The stamina of the cystus helianthemum, are seen to move in various directions when the sun shines on them: many possess this

power without any stimulus being applied, as the kidney-bean and hop plant, which stretch out their delicate tendrils in order to grasp any firm body that may be placed near them, as if conscious of their own inability to support themselves; they will even change their original direction, if the situation of the stick or pole be altered. The honeysuckle does not throw out tendrils until it has got to a height when it would naturally droop and fall to the ground by its own weight; those delicate processes, by a beautiful arrangement of an all-wise Providence, then make their appearance; should it chance to meet another plant of the same kind, they both coalesce for mutual support, the one screwing to the right, the other to the left. The hop plant, in twisting round a pole, will naturally direct its course from east to west with the sun; untwist it, and tie it in the opposite direction, it dies; but if you leave it loose in the wrong direction, it untwists itself gradually, until the leaves are restored to their natural position. Trees planted near a ditch spread their roots in that direction, and should any of the smaller roots appear above the earth, they dip down again to regain a moist situation. There is a remarkable instance mentioned in the 2d volume of the Linnæan Transactions of a plane tree twenty feet high, which grew upon the top of a wall; being straitened for nourishment in this barren situation, it directed its roots down the side of the wall, till they reached the ground, a distance of ten feet. It was amply repaid for this trouble by plenty of nourishment, and a more vigorous vegetation. If a wet sponge be placed near a cucumber, which is growing in a particular direction, it will change this direction, and grow towards the sponge. Thus plants appear, like wise and intelligent agents, to move towards their food, and to turn aside from those soils that are either injurious, or afford but scanty nutriment. But perhaps the motions of a plant termed hedysarum gyrans, are the most remarkable of any we observe in the vegetable world. The leaves of this extraordinary plant are seen in constant motion throughout the greatest part of the day, without the intervention of any external impulse; and even when a branch is cut off and placed in water, the motion of the leaves continues for many hours together. All these plants that grow above the surface of the earth, expose their leaves and flowers to the warm sunshine, and when situated in a place which is supplied by light only from one quarter, they gradually direct their branches towards that part by which the light enters. In stormy weather they retract their leaves, and fold up their flowers, and when confined in the dark, their branches retain the position which they had when last exposed to the light.

The male valisneria sails from shore to shore, over the water, in pursuit of the female. In the same way a multitude of sea plants float through the ocean, and having plenty of food wherever they go, require no roots in order to search for it. The water-lily bears its flowers on a footstalk under water, and when the flowering season arrives, the stalk rises through the water till the flowers are elevated above the surface. The corollæ then expand, and the anthers burst and discharge their pollen in the usual way. About four o'clock in the afternoon, the expanded flowers close, and the stalk lies down either upon, or under the water. The next day it rises as before, and continues to do so until fecundation is complete, when it sinks beneath the surface, and there remains to ripen its seeds. You may naturally ask whether the root would not serve as a sufficiently satisfactory mark of distinction between plants and animals. In the majority of instances, no doubt it would; but, at the same time, I must apprise you that there are a number of plants that have no root whatever. All the parasitic plants are of this kind: many of the lichens also, being merely attached to the trunks of trees by a kind of warty projection, which does not penetrate beyond the outer cuticle. The misletoe spreads itself over the entire of the woody fibre part, and becomes intimately blended with it. One half the fuci have no root whatever; many of them consist of vesicles or vesicular kind of bulbs, which are supported by some stone or shell, and propagate their kind by offsets, without any other vegetable organ. But perhaps the plant most decisive upon this point, is the aerial epidendrum or air plant, as it is termed, from its extraordinary properties.* It is a native of Java and the East Indies beyond the Ganges: and, in the latter region, it is no uncommon thing for the inhabitants to pluck it up, on account of the elegance of its leaves, the beauty of its flower, and the exquisite odour which it diffuses, and to suspend it by a silken cord from the ceilings of their rooms, where, from year to year, it continues to put forth new leaves, new blossoms, and new fragrance, excited to new life and action, solely by the stimulus of the surrounding atmosphere. In the animal kingdom, we meet with a number of individuals capable of living in either element, and hence termed amphibious. The vegetable world is not without instances of a similar power. The algæ and fucus tribe offer us a multitude of examples; the juncus or rush, in many of its species, is an amphibious plant; so also is the coryza or rice; which, though properly

* See Good's Book of Nature.

speaking, an aquatic plant, yet it is now cultivated by the Chinese on the tops of some of their loftiest hills. Further, plants, like animals, are possessed of a wonderful power of preserving their proper temperature, independant of the surrounding atmosphere, and are capable of accommodating themselves to the most astonishing degrees of heat and of cold. Even in the most remote northern latitude to which man has been able to penetrate, plants of exquisite beauty and fragrance have been found perfuming the still and silent atmosphere, and embellishing the barren scenery with their flowers. Thus Captain Parry mentions the delight he felt at beholding the delicate purple flower of the saxifraga opposita folia, appearing through the fissures in the snow, after a dull and tedious arctic winter; it gave, says this distinguished navigator, something like cheerfulness to a scene hitherto indescribably dreary in its appearance. In the same manner, many animals are capable of preserving their vital powers, when completely imbedded in ice or snow, as the water newt and eel. In Russia, it is a common practice to convey eels in this way from St. Petersburg to Moscow; on being carefully thawed, (for it requires to be done slowly and gradually,) the animal is restored to the full possession of health and vigour. Again, both classes of beings are capable of enduring very elevated degrees of temperature. Around the borders of a volcano, in the isle of Tanna, where the thermometer stood at 210, Mr. Foster found a variety of flowers flourishing in the highest state of preservation; and confervas, and other water plants, are by no means unfrequently traced in the boiling springs of Italy, where the temperature is 212°. Animals, we find, are capable of enduring a temperature equally elevated. Sonneret, in his travels through Greece, Egypt, and the Holy Land, mentions, that he found fishes existing in a hot spring at Mannillas, the temperature of which was 158° of Fahrenheit; and Humboldt, the most scientific of modern travellers, tells us, that on his way through the Province of Quito, in South America, he perceived fishes thrown up alive from the bottom of a volcano along with water and heated mud, that raised the thermometer to 210°, only two degrees short of the boiling point. In the same way small living animals are frequently ejected from the Geyser, the celebrated boiling spring of Iceland. The eggs of the common house-fly, are, you are aware, often deposited at this season of the year upon putrescent meat. Now, it is a very extraordinary fact, that if such meat be broiled over a gridiron in the form of steaks, where they are exposed to a heat, at least three times that of boiling water, instead of being destroyed, they are quickened by this exposure into their larva or grub state.* The power of repairing any injury that may be inflicted on them, affords another striking point of analogy between plants and animals. When an animal is wounded, a peculiar substance termed lymph is thrown out from the injured surface, into which vessels shoot from the surrounding parts, and thus union is effected. When a vegetable is wounded, a portion of the sap exudes, which serves an analogous purpose. Thus, if a branch of a tree be broken, provided it is not much contused, and that the accident is discovered early, union may be readily accomplished by preserving the parts in precise contact: it is the same with animal bodies; every medical man knows what a serious difference there is between a simple fracture of a bone, and one complicated with extensive injury of the surrounding parts. In their mode of propogating their young, there is also considerable resemblance. A bud, slip, or sucker, taken from the parent plant, and inserted within the bark of another plant, or placed within the earth in favourable circumstances, vegetates, increases, and in due time becomes a perfect plant: in the same manner the polypus will propogate by cutting, each portion becoming a perfect animal. The hirudo viridis, or green leech, will multiply by longitudinal sections or slips, which correspond with the slips or suckers of plants. The tænia solium, or tape-worm, throws forth ova from its joints; in the same manner some plants bear flowers on the petioles, or edges of the leaves, instead of the flower-stalk, as this, the xilophilla latifolia. In the common potatoe there is a mode of increase by forming a number of bulbs or eyes, as they are termed, which are totally independant of sexual generation: these bulbs become separate individual plants after a year, and are then independant of their parent. In the Jerus. artichok. helianth. tuberosus, the same may be observed. Something similar takes place in the semper vivum globiferum, in which a cluster of leaves is formed, that in time are pushed off by succeeding leaves; these bulbs of leaves, having each a small root, take hold of some neighbouring earth, and become distinct beings; in the same manner the polypus throws out from its surface small warty-like tubercles, which are in fact the ova of the future animal. You are all aware that many plants can be graffed one upon the other, the graff or bud becoming so perfectly united to the parent stock, as to form one individual plant, or rather a congeries of individuals. Trembley, a French physiologist, having applied

* Good's Book of Nature.

the same kind of operation to different varieties of the polypus, found that by grafting them one on the other, he was enabled to produce an assemblage of beings possessed of the most singular and extravagant characters. In the mode of nourishing their young also, we observe considerable resemblance between vegetable and animal bodies.

The farina of the kidney-bean furnishes nutriment to the little embryo plant, until the roots have spread out to a sufficient extent to enable it to enjoy independant existence. In the same way the chick is nourished previous to its exclusion from the egg, by this glairy semitransparent substance, the white. The fœtus, also, while residing in what Shakspeare with great force and beauty terms "the dark urn of its mother's womb," is nourished by the absorption of blood from the cells of the placenta. Lastly, plants as well as animals, are subject to the general law of all organised matter, that of decay and death. From the humblest flower that adorns our fields, to the majestic oak of the forest; from man, intelligent and immortal, to the most insignificant worm that crosses our path;—all, after having accomplished the great purposes of existence, are destined to pass away, in order to make room for a fresh succession of newly-created beings. In the vegetable world, growth and reproduction appear to be the leading objects: many plants speedily arrive at maturity, and having produced their seeds, die altogether; these are termed annuals: others flourish for one or two seasons, and then decay and perish, while others, again, as the chestnut tree, have their life prolonged through many ages. In the Gentleman's Magazine for 1762, we have an account of a tree of this kind, which was then growing at Tamworth in Staffordshire, and was considered the oldest, if not the largest in England, being 52 feet in circumference. The period of its rising from the nut may be fixed at the year 800, in the reign of king Egbert. From that date to the reign of Stephen is 335 years, at which time it was fixed as a landmark or boundary, and called by way of distinction, the great Chestnut Tree of Tamworth. From the first year of Stephen, 1135, to 1762, is 627 years, so that its entire age, at that period, was 962 years. It bore nuts in 1759, from which young trees were raised. In this tree, therefore, the faculty of producing seeds remained at the age of 950 years. Among the inferior animals, the duration of life is exceedingly variable. In the insect tribe, a very large proportion are doomed to perish before their young come into existence. The common white butterfly which you see at this season of the year, flying about from herb to herb, is an instance of this. It is not food she is in pursuit of all this time; for flowers, in fact, have no attraction for her; her object is the discovery of a plant that will supply the sustenance appropriated by Providence to her young, upon which to deposit her eggs. Her own food is honey, drawn from the nectary of the flower; but instead of depositing them here, she seeks for some plant of the cabbage tribe, on which she places her precious burthen. Having fulfilled this duty, this affectionate mother dies, her last efforts being employed in providing for that offspring, which she is destined never to behold. Many animals, on the other hand, enjoy a very prolonged existence. The swan is said to live upwards of 100 years; the goose, eagle, and elephant, near 100; the rhinoceros from 70 to 80.

Having thus entered pretty fully into the several very striking and remarkable points of agreement afforded by the animal and vegetable world, you may naturally inquire, are there any fixed and decided characters by which those two classes of living beings may be discriminated? and here I am obliged to confess, that the boundaries are by no means clearly marked out, and that we are for the most part compelled to characterise the difference rather by description than by definition. Some physiologists have maintained, that all animals were possessed of a stomach or cavity into which their food is received, where it undergoes those changes termed digestion, while plants received their nutriment ready prepared from the soil; but the fact is, there are many animals that possess no stomach whatever. This tapeworm, also, cannot be said, properly speaking, to possess a stomach, and for a very obvious reason, because it requires none: it inhabits that portion of the intestinal canal, where chyle, or nutriment ready prepared, if I may so speak, is found to exist in greatest abundance. This is transmitted through a series of tubes, which traverse the several links, and, in this way, is communicated to every part of the animal. Chemical analysis, perhaps, affords us one of the readiest modes of distinguishing the two classes of bodies. Thus plants have carbon for their base; the base of animal substances consists, for the most part, of azote. Vegetables are seldom compounded of more than four or five elements; whereas animal structures, from their greater complexity, usually consist of eight or ten elementary principles. But, perhaps, after all, the principle of self-preservation, the most powerful in our nature, affords us the best and truest characteristic of animal existence. Every animal, however insignificant, when danger is threatened, endeavours to place itself in a posture of defence. A muscle, or an oyster, for instance, when irritated, immediately closes its

shell, and thus guards itself from further injury. A snail, when touched, withdraws itself within its shell; but if a little quick lime be sprinkled upon it, so that it no longer affords a secure residence, it is thrown into violent agonies, and endeavours to avail itself of its locomotive powers, in order to escape the danger. The common earth-worm endeavours, in the first instance, to contract its dimensions as much as possible; it then renders its integuments as tense as its frail texture will admit, in order to defend itself against "the heedless tread of man." The hedgehog, when alarmed, draws its body together, expands its prickles, and, in this way, bids defiance to its adversary. But, in the vegetable world, we meet with no such provision. This sensitive plant, for instance, when it contracts on the application of a stimulus, is in just as defenceless a state as ever: it is incapable of making resistance; and this, I may observe, furnishes one of the strongest arguments against a fanciful hypothesis maintained by Dr. Percival of Manchester, and the celebrated Dr. Darwin, namely, that plants were possessed of the faculty of perception; that the grass, in fact, which we crush beneath our feet, is sensible to impressions of pain. To render objects so completely helpless and unprotected exposed to incessant suffering, would be inconsistent with that goodness, benevolence, and merciful attention to our wants, so strikingly displayed in all the works of a loving and bountiful Creator.

LONDON MEDICAL SOCIETY.

April 9, 1827.

Dr. Haslam, *President, in the Chair.*

The resumed Discussion on Bony Union of Fracture of the Neck of the Thigh Bone within the Capsule.

The minutes of the preceding meeting having been read, Mr. Tyrrell rose amidst a crowded audience, and said he thought Mr. Amesbury had overlooked some important points in his observations upon the pathology of fractures of the neck of the thigh bone. Mr. Amesbury stated, that he believed that want of apposition and rest was the principal cause of non-union in fractures within the capsule. He (Mr. Tyrrell) thought, on the contrary, that Sir A. Cooper had shown that the principal cause was insufficiency of nourishment in the pelvic portion of the bone. Mr. Tyrrell then made some observations upon the mode of examining the fractures which occur in the neck of the thigh bone. He thought that gentlemen might be misled by symptoms resembling those which are observed when the neck of the thigh bone is fractured, and which he believed sometimes occur in other injuries. He had a case which he conceived was fracture of the neck of the thigh bone, but he afterwards found there was no fracture at all. Mr. Tyrrell, in reverting to the specimens of reputed fracture of the neck of the thigh bone shown to the Society by Mr. Amesbury and Mr. Langstaff, said that he had seen such alterations in the state of the neck of the thigh bone in old people, that he (Mr. Tyrrell) doubted whether any fracture had taken place in either of the specimens shown to the Society by the gentlemen above mentioned, and we understood him to say, that he thought that neither of these bones had been fractured through the neck. Mr. Tyrrell thought Mr. Amesbury had also overlooked the influence of the synovia, which he (Mr. Tyrrell) believed would assist very materially in preventing union, both by its presence between the fractured surfaces, and by distending the capsule of the joint, so as to keep them separated from each other.

Mr. Amesbury said, in answer to Mr. Tyrrell, that he was sorry he (Mr. Tyrrell) was not present at a former meeting of the Society, when the subject of fractures of the thigh bone was under consideration. If he had then heard the observations which fell from him, he would have been spared the trouble of making those remarks which the Society had just heard respecting his opinions upon the subject of union by bone within the capsule. He would repeat, for the information of Mr. Tyrrell, and for those gentlemen who had not heard him. Mr. Amesbury stated on that occasion, that the cause of non-union within the capsule, was referrible to the modes of treatment commonly adopted. The means usually employed were not calculated to preserve apposition and rest, and to their inadequacy in these respects, we must attribute the frequent occurrence of non-union in those cases. Splinters of bone entirely denuded and lying loose, will accept of union, provided they are not deprived of their vitality; and he, (Mr. Amesbury) saw no reason why the pelvic portion of the bone, when there is fracture of the neck within the capsule, should not unite by bone more readily than a denuded splinter, seeing that the pelvic portion is not only supplied with a sufficient quantity of nourishment for its support, but also with a sufficient quantity to produce an ossific deposit upon its fractured surface, as is shown by the increased density of the bone at this part. With respect to the specimens of what he called fracture of the neck within the capsule, he should

not occupy the time of the Society, by attempting to persuade the gentlemen who doubted that these specimens had really been fractured within the capsule, and that they were now united by bone; but he wished the Society to bear in mind the principal facts which had been related in the history of the cases from which these specimens were taken, viz. that each of these persons, who had no other affection but such as arises from age, met with a slight accident, such as we find often produces fracture of the neck of the thigh bone, and immediately after the accident, each of them was found to have retraction of the limb to a considerable extent, amounting, in Mr. Chorley's case, to about two inches, evertion of the foot, and an inability to bear upon the limb. I say, Sir, (said Mr. Amesbury,) I wish the Members of the Society to bear these facts in mind, and to examine the specimens, in both of which they will see a distinct line of ossific union, and in one, great displacement of the head of the bone, and then, Sir, they may draw their own conclusions. I do not conceive that the presence of the synovia between the fractured surfaces, will have much effect in preventing union by bone in fractures within the capsule, any more than in the fractures of other joints. In fractures of other joints, the synovia must often get between the fractured surfaces; but this does not prevent union from taking place. The distention of the capsule, which sometimes occurs from the effusion of a large quantity of synovia and serum, arising in consequence of the inflammation which comes on very soon after the accident, I am disposed to consider of little moment; for though it is possible that other fluids may have the effect of distending the ligament, so as to render the capsule of the joint preternaturally capacious, yet I see no reason why those effusions should not be absorbed after the inflammation has subsided, as well within the capsule of the hip joint, as in the capsules of other joints. We see great distention of the capsules of other joints, from the effusion which takes place subsequent to fractures of those parts of bones which enter into them; but this effusion is taken away in a short time, and why should not the absorbents of the hip-joint be equally active? As soon as the effusion is removed, there is no mechanical power acting so upon the ligament, as to have any effect in keeping the fractured surfaces separated from each other.

Mr. Amesbury having made these observations in answer to Mr. Tyrrell, stated that he had on a former evening promised the Society, that he would submit to their inspection an apparatus which he had contrived for simple fractures of the upper third of the thigh bone, for compound fractures of the thigh, and certain diseases of the hip joint. He had had this apparatus conveyed to the Society, but should confine his observations respecting it to fractures of the neck of the thigh bone. He had, on a former evening in that Society, made a broad assertion, that the means commonly employed in the treatment of fractures of the neck of the thigh bone, were not of a nature calculated to bring about those results which it is the surgeon's business to obtain. I think, Sir, said Mr. Amesbury, that it is a duty which I owe the Society, to offer them something more than a mere assertion in proof of the accuracy of what I ventured to advance in general terms. I shall, therefore, throw out a few observations upon the modes of treatment usually resorted to in the management of these cases.

We are told that when we are called to a case of fracture, we should place the fractured ends in their proper situation, and keep them there; but surgeons appear to forget that this last indication resolves itself into several, differing in number according to the situation of the fracture. In fractures of the neck of the thigh-bone, we have commonly retraction of the thigh, which should be prevented; this is one indication we have of evertion or invertion of the foot; this also should be prevented: we see that the trochanter drops; this then requires to be supported: we see that motion of the fractured ends occurs, whenever the limb or the body is moved; this too should be guarded against. These, then, are four indications, to which we may add another, that of keeping the fractured surfaces closely applied to each other. All these indications should be answered, otherwise we have no right to expect that the fractured ends will unite, even in the most favourable cases, by the interposition of bone. Now, let us see how far these indications are answered by the usual plans of treatment. The first that I shall mention, is that of drawing the injured limb down, and confining it to the other, by means of a bandage passed round the ancles and feet. By this plan, it is intended to make a splint of the sound limb, so as to prevent retraction, and to prevent evertion or invertion of the foot. Here we see only two indications answered; no attempt is made to keep the fractured surfaces in apposition, nor is there any provision to prevent motion of the fractured ends, which must take place whenever the patient raises the body to answer the calls of nature. Another plan is to place a board at the foot of the bed, and lay the patient upon the bed, so that the foot of the sound limb shall rest against the board. A cord, connected with

the foot of the injured limb, is passed through a hole in the board; and to this cord is appended a weight to keep up extension. Here we see, that provided the patient constantly keeps the sound limb straight, extension may be kept up, and that is all. Thus, then, we perceive, that by this mode of treatment, only one indication is answered out of five that have been mentioned. The fractured surfaces are not kept in apposition nor at rest, any more than when the feet are tied together. A third plan is to place a splint on the outer side of the sound limb, to which it is fastened, and extending from this in a transverse direction, another piece of board, which is situated at the bottom of the sound foot, and long enough to allow of the foot of the injured side to be connected to it, so as to keep up extension of the injured limb. Here again we observe the same inattention to apposition and rest, which we noticed in the other modes of treatment that have been mentioned. A fourth plan is to apply the splint invented by M. Boyer. By this, extension may be kept up in some degree, but rarely sufficient to preserve the injured limb of the same length as the sound one; for the strap, passing round the thigh over the injured part, produces so much pain, that the patient is, in most cases, unable to bear the pressure required to keep the injured limb of its proper length. This apparatus, too, has a tendency to force the fractured surfaces from one another. Upon these considerations, therefore, it is objectionable; besides, it answers only one indication,—viz. extension of the limb. Apposition and rest are not attempted, when this apparatus is employed. The fractured surfaces are not kept together, nor is motion of the fragments prevented; when the body is moved, or the limb is moved, motion takes place in the fracture. A fifth contrivance employed in these cases, is the fracture box or double inclined plane. By this contrivance, we may prevent invertion or evertion of the foot; and we may keep the limb in the bent position, which position is the most advisable, because it prevents the knee from becoming stiff, but we cannot keep up a proper and regular extension of the limb. The limb is kept in a proper position; but the pelvis, by its gravity, sinking into the bed or mattress upon which the patient lies, carries away with it the pelvic portion from that portion of the neck of the bone which is attached to the shaft. This apparatus, therefore, is no more calculated to preserve apposition, than either of the other plans of treatment I have mentioned, nor does it keep the fractured ends at rest; for, whenever the pelvis is moved, motion is produced in the fracture, in consequence of the pelvic portion moving with the pelvis, while the shaft of the bone remains at rest. These, Sir, are the plans of treatment which have been resorted to with a view to produce bony union in fractures of the neck of the thigh bone within the capsule; and because bony union cannot be produced by such means, we are told that bony union cannot be produced at all. Sir A. Cooper having found that he has not been able to produce union with these contrivances, and that his friends have failed to do so as well as himself, he has come to the conclusion, that we should not attempt to procure the union of a fracture within the capsule. He recommends us not to confine our patients more than a few days. He advises us to place a rolled pillow under the knee, and to keep the limb upon it for a few days, and then to let the patient get up. Here Mr. Amesbury showed a diagram, illustrative of the evils which must occur to the patient when this plan is resorted to, and said, that the body gravitates towards the foot of the bed, and carries with it the pelvic portion; and the pillow yielding, the thigh gravitates towards the pelvis, so that we have two forces constantly operating, independent of the action of the muscles, to cause the fractured surfaces to pass each other. Mr. Amesbury was sorry to mention Sir A. Cooper's name, as connected with this practice, but his name was so wrapt up with it that he was obliged to do so. He regretted much that Sir A. Cooper should have recommended this plan of treatment, as well for his own sake as for the profession and the public. This was a plan of treatment which, in his (Mr. A.'s) opinion, was not only useless, but must be often very injurious. It was well known, that in many cases of fracture of the neck within the capsule, the close coverings are only partially divided, and that in some they are but little injured. In such cases, from the mode of treatment recommended by Sir A. Cooper, those slips or portions of the close coverings which are not torn through at the time of the accident, will probably become absorbed in consequence of the constant pressure of the ragged ends of the fractured bone against them. Strong pressure, we know, is calculated to produce absorption of ligament, and even of bone in other parts, and why not produce it here? And when we add to the pressure the friction of the serrated edges of the fractured ends against the close coverings of the neck of the bone within the capsule, there is too much reason to fear that absorption, or laceration, would be the consequence, and thus a fracture, of the most favourable kind for the patient, would be converted into one of the most unfavourable; so that it is nearly the same to the patient whether a complete division of the close coverings is produced

by the force which occasions the fracture, or by the powers which are, according to this plan of treatment, suffered to operate subsequent to the occurrence of the accident.

Mr. Amesbury now called the attention of the Society to the plan of treatment recommended by Mr. Harrold; by the contrivance which he recommended, as far back, as he believed, 1805, all the indications which Mr. Amesbury had mentioned, might be answered. He thought, however, that the contrivance which Mr. Harrold had recommended, was far more complicated than was necessary to answer these indications; he therefore regretted that Mr. Harrold had not simplified his apparatus, which Mr. A. thought he might have done if he had reflected more upon the subject. Simplicity should be adhered to as much as possible; but if he were asked what he meant by the term simplicity, as applied to a piece of machinery for surgical purposes, he should say, it is that which answers the same intentions by the fewest means. To illustrate this point, he would say, that if one apparatus contains twenty parts, another only two; the one with two parts was to be preferred, if they were both found to answer the same intentions. He objected to Mr. Earle's bed, because it is more complicated, he conceived, than is necessary, and because it does not allow of being adapted to the exact length of the thigh bone, which he considered a point of great importance. Mr. A. now exhibited and explained his new bed for fractures of the upper third of the thigh bone; compound fractures of the thigh, and certain diseases of the hip, and of the knee-joints. Mr. A. said that he did not claim for this new contrivance any novelty in principle. If any merit were attached to him, it was only on account of the improvement in its mechanism, which improvement consists in its greater simplicity. Mr. A. now explained upon a diagram of large size, the manner of using his fracture bed, for fractures of the neck of the thigh bone, and demonstrated the manner in which the apparatus may be made to answer all the indications which he stated in a former part of his remarks, before we have any right to expect bony union will be commonly produced in fractures within the capsule.

Mr. Amesbury concluded by observing, that he did not expect that his contrivance would be adopted for a considerable time, for it so happens that the profession is not very fond of taking up any thing new. A great many years usually elapse before the public are allowed to reap the advantage of any new invention or improvement, however valuable it may be. Dr. Spurzheim had been demonstrating the structure of the brain for upwards of ten years; but though his mode of describing it is considered on all hands to be the best and the only scientific plan, yet that plan is not adopted. Dr. Blundell published his valuable observations upon transfusion ten or twelve years ago, yet it was not till last year that the subject was taken up, so that the public might obtain the advantages which it offers; and he would say that the public were indebted to that Society for the manner in which that subject was taken up in the winter of 1825 and 1826, and to THE LANCET for the publication of their discussions, for all the advantages which they *now* enjoy from what was published so long ago by Dr. Blundell. Mr. A. said, he liked the spirit of the Society as it was now constituted. It should be their business to investigate principles, doctrines, and plans, without any regard to the persons from whom they emanated, and if they found them good, they should sanction their introduction, and if bad, they should endeavour to prevent the public from being injured by them. This was the feeling, he thought, which now existed in the Society, and he trusted it ever would be as long as he had the honour to be a Fellow of it.

A GENTLEMAN, whose name we could not learn, made some remarks which he will find answered by referring to our former reports; and others, which we did not understand. However, he will have an opportunity of explaining himself at the next meeting, as it was agreed that the discussion on fractures of the neck of the thigh bone should be resumed.

PHRENOLOGY.

To the Editor of THE LANCET.

SIR,—During Dr. Spurzheim's demonstration of the brain, at the Bristol Institution, the following occurrence took place—That convolution pointed out as the organ of justice, was remarked by the Doctor to be unusually small; one of the medical men present, wishing to ascertain the character of the man, made inquiries, and found he had died in the poor-house, and that by inventing gross falsehoods, and practising various deceptions, he obtained relief several times, and was otherwise known for his want of conscientiousness. Your impartiality in admitting facts relative to phrenology in your Journal, induces me to send you this, and should you deem it worthy of insertion, will much oblige

Sir, your constant reader,

A PHRENOLOGIST.

Bristol, April 11, 1827.

THE LANCET.

London, Saturday, April 14, 1827.

THE Petition of the Surgeons of the town and county of Nottingham,* for a Committee to inquire into the government of the College, was presented to the House of Commons on Monday evening last by Mr. BIRCH, and was ordered to lie on the table. Mr. Birch, whether from disinclination or disability, we cannot say, did not, according to the newspapers, make any observations in support of the Petitioners' prayer. Mr. Hart Davis, when he presented the Petition of the Surgeons of Bristol, was equally silent, which the petitioners of both places will do well to recollect on certain occasions. Had the subjects of these Petitions been of a popular nature; had they been calculated to excite public clamour, pot-house spouting; had they furnished food for the gratification of the zealots of bigotry; had they concerned the conversion of a Catholic, the heresy of a Protestant, a spring gun, a preserve, or a dead pheasant; then there would have been no lack of speakers, no lack of "animated" discussion. In each of these cases the *feelings* would readily have been called into play. But in the case of the College, some thought is required; and reasoning, we all know, with certain people, is an exceedingly laborious operation, a task seldom undertaken, and much more seldom well executed.

When the Petition of the London Surgeons shall be presented, a motion of course will be made for the appointment of a Committee, on which some discussion must take place, and we shall have an opportunity of observing how far the Members of the House are acquainted with the government of the College. If there be any who suppose that reform is not required, and that the Council have discharged their duty to the profession by upholding its dignity and respectability, to such we present the following paper:—

"By His Majesty's Royal Letters Patent.

LEAKE'S JUSTLY FAMOUS PILL,

Which for more than 80 years has been esteemed the most efficacious remedy and complete specific for all venereal disorders, ever discovered; in chronical rheumatism, glandular obstructions, old sores and disorders arising from an impure state of the blood it excels: and for pimpled faces, scurf, and all eruptions of the skin, commonly called scorbutic, it has not its parallel. One small tasteless pill is a dose, its operation imperceptible, requiring no particular attention, confinement, or restraint of diet, yet curing with ease, secrecy, and safety.

In 15 days it generally cures those cruel disorders, and where it fails in that time of perfectly restoring health, the patient has the happy assurance that he or she is at the eve of being so restored, let the degree of malignancy be ever so great. It is an excellency peculiar to these pills, to make directly to the complaining part, and enter into contest with the offending matter, which they quickly dislodge and expel.

They are declared by experience to be a preserver of health as well as restorer, by taking only eight single pills, spring and fall in every year. In short, the patentees have this extraordinary obligation to them, that whatever they promised themselves from them, they were sure to fulfil and exceed, as though impatient of immortal and universal fame. These pills are most worthy a place in the cabinets of masters and captains of ships; the more so, for that they will keep good in all climates, any length of time, and that they have now borne the test above 70 years, with increasing credit to themselves and honour to their author; inasmuch, that during the last 12 years, they have radically cured upwards of 80,000 persons, many of whom had been discharged from hospitals, where salivation had been frequently repeated, and all other methods made use of without effect.

Prepared and sold by the Proprietors,
T. TAYLOR & SON,
*Members of the Royal College of Surgeons,**
At their House, No. 9, New Bridge-street,

* SEE THE LIST OF REGULAR SURGEONS, PUBLISHED BY THE ROYAL COLLEGE."

* The newspapers say *Northampton*, which, we apprehend, is a mistake.

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A BACK DOOR; LIGHTS IN THE PASSAGES AT NIGHT.

The Proprietors will give advice and all proper assistance to persons taking the above or other of their preparations, without a fee. Letters from patients, post-paid, duly answered, and medicines carefully and secretly sent into the country by any of the carriers.

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After this, who will say that it is not a disgrace to be called a Member of the Royal College of Surgeons in London? We believe the above filthy paper has been circulated in this town by the Taylors upwards of twenty years. In the note they say, "See the List of regular surgeons, as published by the Royal College," which list we have examined, and, to our shame, confess that we find recorded there the names of Thomas and Joseph Taylor, New Bridge Street—who have a "Back Door" and "Lights in the passages all night." Can the Members of the College any longer endure being thus scandalized?

The Lecture of Dr. M'Keever, though long, is exceedingly interesting, and contains many valuable hints to those Lecturers who have to address Mechanics' and Literary Institutions; but let them bear in mind that the prejudice against dissections can be successfully combated only by Actual Demonstrations of the Human Body.

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1. *Observations on the Deranged Manifestations of the Mind, or Insanity.* By J. G. Spurzheim, M.D., Licentiate of the College of Physicians of London, Physician to the Austrian Embassy, Author of the "Physiognomical System of Drs. Gall and Spurzheim," &c. With Four Copper Plates. 8vo. pp. 312. London. Printed for Baldwin, Cradock, and Joy, 1817.

2. *Observations on the Causes, Symptoms, and Treatment of Derangement of the Mind, founded on an extensive Moral and Medical Practice in the Treatment of Lunatics.* By Paul Slade Knight, M. D. 8vo. pp. 167. Longman and Co., London, and Robinson & Co., Manchester. 1827.

3. *Outlines of Lectures on Mental Diseases.* By Alexander Morison, M. D., of the Royal Colleges of Physicians of London and Edinburgh; 13 Engravings. London, 1826. 8vo. pp. 150.

The distant cause of mental aberration was variously located by the Greeks, though they did not fail to place the proximate cause in the right place; that is, in the brain, which in this state ceases to perform its healthy functions. There was madness for poets, for sorcerers, and for lovers; and not to mention more, another species, ex corporis causâ sive iniquitate, which in reality is all that we have to deal with in the present day. Inspiration is now scouted by the vulgar.—Apollo's oracles are silenced for ever. Plato's love, according to the craniologists, is the beastly workings of the cerebellum; and even wit and genius, the vibrations only of cerebral pulp! Such being the healthy action, insanity is easily explained without the aid of metaphysics—it seems, in truth, to be only an inversion of the *mens sana in corpore (aut potiùs, cerebro,) sano.* The most illustrious of the Greeks, maintains this doctrine; in his book, *De Flatibus*, he makes prudence depend upon the quality of the blood; and certainly if this be conveyed to the brain with too much or too little impetus, there is every reason for supposing that the manifestations of the mind will, sooner or later, give evidence of the wrong. In most recent cases of insanity there is direct proof of determination of blood to the head, and if it be wanting in old ones, it is not necessary that the distant cause should co-exist with the proximate—the mind is inflected for ever, because its organ is per-

manently diseased. Dr. Haslam, in his eloquent oration on the human mind, (LANCET, Vol. IX. p. 827.) anticipates "the explosion of the baneful doctrine of the mind's unsoundness, the mischievous contrivance of forensic subtlety, the repose of ignorance, and the tool of fraud—the blazon of materialism, an insult to common sense, and a libel on the christian religion." And the philosophical author of the anatomy of the brain, makes the following observations: "It should be known (LANCET, Vol. VIII. p. 324.) that the brain can fall sick as well as other parts of the body, and it is of the highest importance to seek for advice in the beginning of the malady. Insanity is corporeal, it depends upon a diseased action of the brain." - - - - - -

"It is the result of causes acting from without, and not of causes called moral, but such as act upon the head, as too much loss of blood, too much drinking, and other causes." Esquirol, on the contrary, considers the passions to have a vast influence in producing insanity; but his opinion, as will shortly appear, is not well supported by facts.

"The moral impulses," says Dr. Slade Knight, "very rarely produce insanity, and this is also the case with regard to religious feelings. I come to this conclusion because, of nearly seven hundred cases of insanity that I have sedulously treated, I have only *once* ascertained, with that clearness which I think the importance of the subject requires, namely, unquestionable proof, that either a religious or a moral cause produced the disorder. It is true," he continues, "I have frequently been informed that this and the other person became religiously insane, through following some sect not connected with the narrator's persuasion; but when it has been possible to get an intelligent history of the person, I have uniformly found that the individual had betrayed at least equivocal symptoms of insanity, and that derangement of the mind, though not palpable, had obviously existed before he became a raving devotee; and doubtless from this state of mind has arisen that proneness to change his mode of worship so frequently noticed *in him* who is what is termed, religiously insane."

This is manifest enough, for absurd would it be indeed to assert, that the disease is *caused* by the disease—the author of itself—at once cause and effect. Who shall believe that moral causes can produce insanity, in any other way than physical ones? that is, by inducing disease of the brain, of which there can be no doubt they are capable, seeing that sudden fear or joy has produced instant insanity and death; for since it cannot be admitted that the *proximate* cause of any disorder, phlegmon, for instance, in one instance, differs from that of phlegmon in another, however the exciting or remote cause may vary.; so neither can insanity have more than one proximate cause, though, like other diseases it may assume various degrees, types, and modes, the most of which phrenology will explain. Where the proximate cause ceases, the disease must begin; unless the proximate cause of insanity be the healthy manifestation of mind, which is absurd, some degree or other of diseased manifestation must be; but since this constitutes insanity, it is both the disease and its proximate cause which is impossible; the argument, therefore, cannot be maintained.

According to Dr. Spurzheim, what are called the moral causes of insanity, is merely activity of the feelings. "A man," he says, "may have benevolence too active; he may give away every thing that he has, and we call such a man a fool." The treatment consists in exercising the opposite feelings. Suppose the feeling of veneration should be too strong; shall we, he asks, give the person religious books to read, which are to make him more deranged? That organ, he contends, which is most developed and active during health, is also most active when diseased. Thus, a proud man will fancy himself a king, &c.; there are some exceptions, however, to this rule, "If I am told," says Dr. Spurzheim, "that an individual has committed a murder during his insanity, I should not always look for a large organ of destructiveness, but inquire as to his motive; and if I found that

he dispatched another in order to save him eternally, having sent him away that he should sin no more, I should rather look for the organ of conscientiousness." We confess that we do not see exactly how every species of insanity is to be treated on phrenological principles, as a man of this state of mind, for instance, though the science is certainly capable of throwing a world of light on the varieties of the disease called mental. In some cases the indication is obvious enough, as in that related by Celsus, (Lib. III. cap. xviii.) of a rich man in fear of starving, who was cured by frequent accounts of estates bequeathed to him.

In all cases of insanity, we apprehend, the brain is diseased; but will a particular phrenological treatment remove the disease? or can it direct the administration of drugs, or topical, or any other therapeutic treatment? There can be little doubt that it unfolds the philosophy of insanity, or that it is a powerful auxiliary in its treatment, and as such deserving the particular attention of practitioners; but it is not all in all. How should the madness of Ajax or Orestes be controlled by phrenology? It might be explained by it.

If we understand Dr. Spurzheim, insanity is a morbid activity of some particular organ or organs. "Give to the brain," he says, "more than the brain can bear, and it will become deranged." To this opinion Dr. Slade Knight seems to incline: "I am led to believe," he says, "that the intellect is *developed* by *pressure*, which, in the *sane* can, for the most part, be *exerted at will*; *in the insane acts independently of any voluntary movement*;" (that is, it is constant, corresponding with the morbid activity of Dr. Spurzheim;) but how this pressure is produced in the healthy subject, what is its proximate cause, I know not; certainly, it is not any turgescence of the blood-vessels. I consider the sane (activity of well developed organs—Spurzheim) to be the remote cause of all the phenomena of mind. Gillies, in his analysis of Aristotle's works, has observed, that when we reflect, or are endeavouring to recollect, we are conscious of some movement—of an act, or series of acts, within the cavity of the cranium, as though hunting about among our thoughts. And,

"---who has not, (asks Dr. Knight,) when tossing on the restless couch, anxiously courting sleep, experienced the tranquillizing sensation of sleep stealing over him, felt his brain gradually relieved from the busy throng that has crowded there, felt as though his energy had relaxed, and the power that had *pressed* it to action had ceased—that is, felt he was tranquilly falling asleep, and then suddenly been roused by all the sensations of thought, renewed; in fact, by a return of the pressure?"

Haller, Clutterbuck, (Lancet XI. 169,) and others, make sleep the effect of retarded circulation (in fact, pressure) of the blood, in those parts of the brain which are devoted to the sensorial functions; and it cannot be doubted, that whatever tends to overgorge the vessels of the brain, has the effect of producing sleep as it should seem by pressure. Coma, from compression, drunkenness, great plethora, or suppression of urine, one daily sees. It would be difficult, therefore, to believe, that pressure should be the cause both of activity and of inactivity, unless two sets of vessels are implicated. In a standing or sitting position, there is little doubt that the veins will be emptied more effectually, and oftener, than in the recumbent posture. Increased or lessened activity of the arteries, will naturally follow; producing, when excited, vivid thought in the one case, and sleep in the other. It will hardly be contended, that a part has not more blood passing through it when actively employed, than when it indulges in repose; but we question whether this activity of the arterial system in the head, during intense thought or intellectual enjoyment, operates by pressure. Venous congestion is the opposite of arterial vigour, as is inertness of elasticity. In youth, the

balance inclines to the arteries; in old age, to the veins. That the arteries are busy in an active brain cannot be doubted; how else should literate men suffer more from cerebral derangement in fevers, than the ignorant rustic?—the habitual drunkard, than either?

The exact state of the brain, which constitutes the proximate cause of insanity, will doubtless be discovered, when the true structure of the healthy organ shall be intimately studied, after the manner of Vieussens, Gall, and Spurzheim, and its mysteries pried into by the aid of powerful glasses, which were employed with so much effect by Soemmering, in explaining the organisation of the eye. We trust that the hiatus valde deflendus, in MS., will, ere long, be supplied. Gall and Spurzheim have done much; but sufficient remains to be done, to bestow a rich reputation on any man who will seek it, in this interesting field of inquiry. In some cases, no doubt the brain is affected by sympathy of other organs; but, as Mr. Lawrence observes, (Lectures on Physiology, p. 106,) "it does not often come under the inspection of the anatomist, in such cases of functional disorder," because either the patient recovers, or death follows, after a lapse of time of actual disease; so that if a person die deranged, an industrious and skilful anatomist will pretty certainly be rewarded for the labour expended in examining the brain, either by discovering something new, or, which is scarcely less useful and honourable, by confirming what had been observed before.

Dr. Morison's work being an outline of his lectures, is, of course, more the frame work of a system, than a practical treatise on the subject of insanity; and consists, principally, therefore, of definitions, general directions, statements and particulars, nosological distinctions, and aphoristic remarks. It forms an extremely useful text-book for its author's pupils, and medical inceptors generally. The work of Dr. Slade Knight is an excellent treatise on the treatment of the insane, founded on very mature experience and extensive practice in the county asylum of Lancaster, and shows its author to be a man of sound and cultivated understanding.

Of Dr. Spurzheim's work, we shall speak more particularly hereafter.

Dr. Morison has adopted Pinel's nosological arrangement, as modified by Esquirol, comprehending

Mania, or general insanity,
Monomania, or partial insanity,
Dementia, or fatuity, and
Idiotism.

Dr. Slade Knight dwells more on the treatment; and, as a practical man, seems to care little about nosological distinctions, which, in the writings of some, have been carried to a ridiculous degree of refinement. Though we do not see any great objection to the above, Cullen, Sauvages, and Linnè, are instances in point. The former has three species of mania, and various sub-species:

1 Mania (*mentalis*) omnino a pathemate mentis.
2 —— (*corporea*) a vitio corporis evidente.
3 —— (*obscura*) pregresso nullo vel pathemate mentis, vel vitio corporis evidente.

The first from affection of the mind, the second from pravity of the body, and the third from neither! But while we are upon this subject we may notice the opinion of an excellent practical physician and talented author, the late Dr. Parr, who says, "Perhaps there is no disease purely mental. When affections of the mind produce corporeal complaints, they first act by injuring the functions of the body; when the [manifestation of] mind also is diseased, bodily changes first appear; and the most purely mental maniæ are found to arise from topical affections of the brain. There is not even a sufficient foundation for distinguishing those species which arise from atonic gout, repelled eruptions, syphilis, &c.; for though originating from bodily causes, they con-

tinue like the *apparently* mental diseases. In short, there is no foundation for the sub-division of species in this complaint; since, like many other reputed genera, it is only itself a species." . . . . . Some authors have unnecessarily varied the species from the circumstances or causes of the disease, almost realizing the maxim of the French, that "all fools are mad."

But we pass on to the operation of moral causes—the morbid activity of particular organs of Spurzheim; and it will appear, from what Dr. Knight says on the subject, that very discrepant statements and erroneous opinions are hazarded on this point in the tables which are issued from lunatic houses. In the Bicêtre and Salpêtrière of Paris, for example, the operation of moral causes in producing insanity is set down as follows. The Bicêtre is for men and La Salpêtrière for women; the former superintended by M. Hebrèard and the latter by M. Esquirol. From the year 1807 to 1813, there were admitted into the Bicêtre, 1578 men, of whom 409 are said to have been driven mad by moral causes, that is—

By religion	55
ambition	78
love	37
misfortune	116
political events	24
trouble	99
	409

Being less than 2 in 7, or 1 in 3 $\frac{44}{100}$.

In La Salpêtrière, of 1940 women, 580 are said to have been driven mad by moral causes, that is—

By religious excess	20
love, crosses in	122
reverses of fortune, and misery	96
political errors	15
domestic trouble	216
anger	20
fear	64
effects of conscription and war	27
	580

Being more than 2 in 7, or 1 in 3 $\frac{58}{100}$.

Upon these tables, Dr. Knight makes the following critical remarks:—

"In France, it would seem that religion is rather a fruitful source of insanity, and that religious enthusiasm affects the man more than the woman, in the proportion of above three to one; that ambition, a laudable passion, and very frequently one that affords great mental enjoyment, drives a considerable number of men in France mad, but does not derange the intellect of one woman; but on the other hand, that *pride*, a master passion, often extremely harassing to the mind, seems to be innoxious, both to man and woman—which must be regarded as very singular, since so many minor causes, that is, subordinate passions, appear to be so extremely baneful to the intellect: for

"Pride hath no other glass
To shew itself, but pride."—SHAKS.

And again, because it is not uncommon to meet with persons, in England at least, influenced by

"Vain aims, inordinate desires,
Blown up with high conceits, engendering pride."—MILTON.

And yet of about a thousand men and women, said to be driven mad by moral causes, not one is affected by *pride!* Love, (unrequited love, I presume,) affects the man a little, and plays the deuce with the woman: I should not have expected this. Grief seems to have a large share in the production of all this mischief, for I conceive that misfortune, reverse of fortune, and misery, all refer to grief. Political events is a term so indefinite, that it leaves us perfectly in the dark as to its moral effect on the mind. This may be terror, or joy, as moral causes; or the causes may be purely physical, as from fatigue, privation of food, and the thousand exciting vicissitudes of a campaign. If political events is objectionable, what can we say to political errors? This is still more perplexing, because it is not impossible, perhaps not improbable, that what one calls *political errors*, another may consider to be *political wisdom*. Is it not strange, that such terms should have been used in a classification of moral causes, said to have dethroned the reason of man? I am, however, disposed to look on this as a sample, by which we may judge of the whole classification of moral causes, and by which we may judge of the degree of perspicuity and accuracy, or may I say, confusion and inaccuracy, with which they are ascertained and defined. But passing on, we come to *domestic troubles*, which exceed in their baneful effects the mischief of *love* nearly twofold. This is some consolation for that very amiable class of women, sneeringly called

old maids, as well as for that much less respectable class, the old bachelors. If then men suffer from ambition, they wholly escape the baneful effects of both anger and fear, the latter of which, I suppose, must include terror. Not so the women, who, with all their gentleness, have, we must conclude, some sad vixens among them, for of 1740, twenty are officially reported to have gone mad through anger. To speak more seriously, an attentive consideration of these tables of classification has by no means weakened my opinion, respecting the very few cases of insanity that are absolutely produced by moral causes. I do not, however, question, much less do I deny, the effect of moral causes on the body, especially if the body be in any way disordered, both in accelerating disease, and in removing it. I am fully convinced, as my observations on moral treatment will, I trust, clearly show, that the abuse or excess of moral causes tends as powerfully to weaken, as, on the contrary, their due exercise does to strengthen, the intellect; indeed they operate on the body so palpably, as constantly to affect wounds, when the influence on the mind is powerful, as every experienced surgeon must have witnessed; and this fact is so well known, that I must beg my professional reader will excuse me for mentioning it. Nevertheless, I cannot concede, that moral causes frequently, or even rarely, possess the tremendous power of *upturning reason. The tables I have quoted, vague and unsatisfactory as they are, strengthen my conviction of the infrequency of moral causes producing insanity.*"

Dr. Knight quotes the following case of what is called religious insanity:—

"October 11th, 1823, Elizabeth A., a lusty young woman, admitted this day.—Oct. 17th, she pointed out to me the 5th chapter of Ephesians, and said she was reading an exhortation to love; her manner and expression of countenance corresponding to the sensual import of the passion. Another time, she pointed out the 2d chapter, 4th verse, of Solomon, and with voluptuous expression quoted these words: 'He took me to the banqueting house, and his banner over me was love.' She was always talking on religious subjects; and she had hymn-books, wherein the passion of love was too warmly portrayed, as I conceive, to be suited to its professed object; many of these she had by heart, and would sing to the tune of profane airs, with all the expressions of an amorous passion."

Dr. Knight is inclined to believe, that in almost every instance the moral causes owe their origin to corporeal disorder; no matter how induced, whether remotely from the brain, or otherwise. In this he does not differ widely with Spurzheim. Terror, undoubtedly, may produce instantaneous lesion of the brain, as may a few of the passions; but we are disposed to agree generally with Dr. Knight, that the effect is often taken for the cause; that moral causes have very little direct effect in producing diseases of the brain, which we fancy are oftener caused more by a sort of reaction of an effect produced on the body generally or partially by particular ideas or passions, than by the passions or ideas themselves; for a part which moulds an idea, (we crave pardon for the expression,) cannot, we apprehend, be deranged by the idea formed, though it may, by a successive elaboration of similar ones, which, indeed, is the morbid activity of Spurzheim. Another extract from Dr. Knight, and we have disposed of the subject of causes.

"I appeal," he says, "to the experience of mankind for the confirmation of the fact, that the corporeal sensations and functions exercise a constant influence on the mind. The man born blind, though of sound intellect, thought the colour of scarlet must bear a strong resemblance to the sound of a trumpet. If this confusion could exist in a man of perfect intellect, through his being of imperfect corporeal sensation, can it be matter of surprise, if a man who has possessed all the organs of sensation, and the functions of his body perfect, should become alarmed and confused, when his sensations convey new and unaccountable impressions, as they undoubtedly very often, and perhaps always, do in the insane? The patient will not unfrequently express his apprehension of the change in his sensations.

"With ideas unsettled, arising from the diseased action of the organs of sensation, by which the direct perceptions are made to convey false images to the mind; with the passions excited, probably arising from locally increased arterial action; and the intellect thus led astray and bewildered, but as yet conscious of the confusion that is passing within, can it produce surprise, if religion should be the harbour to which the terrified and wretched victim flies for refuge and for succour! On the other hand, are the amatory feelings excited? straight the patient falls in love, it matters not who the object may be. The other passions obey

the same law. The devotee and the lover go on, become troublesome, and too eccentric to be tolerated; and then, and not before, they are discovered to be insane, the one through love, the other through religion. This I believe to be the true history of moral and religious causes, ninety-nine times out of a hundred. I shall defer what I have to say of moral treatment, till I come to the treatment of the insane generally, as the SAME MORAL MEANS under SIMILAR AFFECTIONS of the mind will be proper and necessary, *whether the corporeal ailment be very different, or whether it be ascertained or not.*"

Dr. Knight quotes a host of authors who have written on insanity, and adds to their opinion his own, for the purpose of showing the mischievous effects which are often produced, even in the high paroxysms of the disease, by the abuse of venesection. He has never seen bleeding lessen the violence of the paroxysm, but has seen the excitement augmented by it. The same observations apply to perpetual or long-continued insanity. It is not only in mania that the mischievous lancet leaps from the pocket too frequently; but it will hardly be necessary to lay down any particular rules for bleeding in this disease, except that large ones are rarely necessary, and that topical ones answer best. Sedatives are almost uniformly indicated. The digitalis is a valuable medicine in cases of insanity, for which it was first employed by Dr. Withering; but "on its *first administration*," says Dr. Knight, "it is as decided a stimulus *as brandy or geneva.*" He has produced a case in proof of this assertion. It never fails, however, after a few days to reduce the pulse in force or number—often in both. When the pulse, under this medicine, *loses* in power, but gains in velocity, the author has always found it doing harm. In the case alluded to above, the dose of the tincture was gradually increased to m lxx. ter die, when it produced nausea and sickness, after which the patient did well. Camphor, (with nitre or digitalis,) hyoscyamus, conium, are in greater repute than opium, in the treatment of insanity. Esquirol condemns the whole tribe, regimen and exercise being, according to him, the only somniferous measures which can be safely recommended.—Cæteris paribus, lunatics do not require stronger purgatives or emetics, than the sane. A suppository of elaterium, gamboge, calomel, and soap, has been very effective in the author's practice. Pil. hydrarg. and other alteratives, are often of service. Madmen will speak of sensations which they do not perceive, and deny sensations which are obviously acting powerfully upon them. Very properly, therefore, may Dr. Knight lay down as a caution, in concluding his sections on the subject of the medicinal part of the treatment, that "the safe, and therefore the only justifiable mode of proceeding, seems to be, to administer no medicines to the insane, *with the use of which we are not familiar, and that, too, after being well versed in the peculiarities of the insane.*"

Baths were highly extolled by the ancients in the treatment of insane persons. The shower-bath, Dr. Knight thinks, sometimes relieves the head-ach and irritability in old cases, when the skin is hot and dry, though, upon the whole, he appears to think lightly of it, and still less of the cold bath, plunging or otherwise. The tepid bath, at about 96 of Fahrenheit, is very grateful to lunatics, and may be used with advantage once or twice a week.

Dr. Knight has found the circular swing of singular utility, in the cure of insanity. It produces giddiness, as may well be imagined, sickness, and wonderfully increases the peristaltic motion of the intestines. The patient vomits, and passes his urine and feces in great abundance, and in rapid succession. In cases of obstinate constipation, and of dyspepsia, accompanied with acidity, it is therefore particularly useful. Mary Sandiford, one of the author's patients, was convinced, that "putting her in the swing did her more good than anything else; it threw all the sour stuff off her stomach." She soon recovered. When pa-

tients, who are dyspeptic or bound in body, are unruly, the circular swing "never fails to be physically and morally beneficial;" and, contrary to the apprehensions of some persons, Dr. Knight thinks it never can induce apoplexy, unless "*the patient is in a furious state when put into it.*" In this state, the act of turning exasperates the patient; he will struggle violently, and neither stomach nor bowels will be affected for several minutes, if at all. With this exception, Dr. Knight thinks the circular swing perfectly safe; and that it may be used with most advantage, a little before retiring to rest, as the unloading of the alimentary canal, the lowering of the pulse, and the relaxation of the skin, which it induces, very generally predispose to sleep. We apprehend that the sickness, &c. have the effect of lowering the pulse, but that up to that period, the swing has a tendency to increase the vascular action of the brain. If the patient be plethoric, Dr. Morison recommends the previous abstraction of blood.

Dr. Knight was successful in curing eight patients of fifty-eight, who had epilepsy with mania, a state which rarely ends in recovery. He regrets that he cannot give the details of his practice upon this occasion, "as the journals containing these cases, are at the Lunatic Asylum for the county of Lancaster." The same excuse occurs in another place; and hence, much to the disgrace of some parties or other, we are obliged to infer that obstacles have been thrown in his way of procuring them. He "*fortunately* has the numbers," which he has given. The sp. terebinth. small bleedings, digitalis, &c., were among the remedies employed. Straightening the hands and limbs often appeared to arrest the progress of the fit.

In a section "on the disinclination of taking food," which lunatics sometimes manifest, Dr. Knight proposes the addition of the stomach pump to the common key, for introducing food in the stomach, as also to Mr. Newington's instrument, described in the tenth volume (845) of this Journal, to which there can be no objection. Some, according to Celsus, have eaten heartily when placed among people engaged devoutly in the same occupation. The idea seems a good one. Dr. Knight relates an instance of a man who used a wheelbarrow by something like the same sympathy.

Dr. Knight describes a few ingenious methods, one apparently novel, of securing lunatics; for which, as they are described by plates, we must refer to the volume. A curious account, by a young gentleman of his sensations, during a temporary deprivation of reason, as also of the scenes in which he then thought himself employed, forms an appendix to the volume, and we much regret that we are, at present, precluded from making any extracts from it. We may, perhaps, have an opportunity of doing so hereafter. It is a highly curious document; proving that lunatics are often sensible of their hallucinations, without being able to control them.

(*To be continued.*)

ROYAL INFIRMARY.

"*Extraction of a Calculus from the Perineum.*"

The singular and somewhat inexplicable fact of a calculus being formed in the perineum, without any present communication with the urethra, was witnessed in the theatre of the Royal Infirmary, on Thursday last. The patient, a young man, otherwise in perfect health, was admitted a day or two previously, and stated, that about eight years ago, he observed a tumour in the perineum, which subsequently suppurated, leaving a fistulous passage, which has continued open since that time. During this interval, he asserts positively that no urine ever escaped through the external opening, and that he never experienced the slightest difficulty of micturition. On examination, the perineum presented a sinuous ulcer, about an inch and a half anterior to the anus, and a little to the right side of the raphe. On passing a probe into this fistula, the instrument grated on a hard sabulous substance, which could be also felt by pressing with the fingers on the external integuments. No

doubt could of course exist of the presence of a calculus in the part, and the practice was equally obvious and of ready execution. The patient was accordingly brought to the theatre; a sound passed into the bladder without the slightest obstruction; the opening enlarged; a forceps introduced, by the joint agency of which, with the operator's fingers, a stone of a considerable size, oblong, flatted, and rough on the surface, was extracted. The deposition of the original nucleus in this situation, and its progressive enlargement, are matters not so readily disposed of, and rather unintelligible, without a supposition of a lesion in the urethra at some time or other; but of this the proofs are merely imaginary. The explanation which hypothesis affords of the phenomenon, is plain enough, but far from being satisfactory. Thus it might be supposed, that the nucleus of the stone passed out of the bladder at an early period of the patient's life, and was deposited in the urethra, and as it increased in magnitude forced its way into the perineum. But then, against this complicated supposition, we have a combination of coincidences which are not so easily digested. In the first place, we have the patient's testimony that he never at any time experienced any difficulty in the excretion of his urine; a fact which, if true, is scarcely compatible with the distinction of a foreign body in the urethra. In the second place, it is highly improbable, from the well known destructive powers of urine on the living fibre, that if this fluid had been constantly passing over an abraded portion of the urethra, while an opening existed exteriorly, that none of it escaped in this direction. Thirdly, in order to remove the latter objection, we must imagine that the internal opening had been repaired precisely at the time when the exterior one had been formed, which is at least somewhat fortunate, if not improbable. But it is, perhaps, unreasonable to reason further on the subject; all that is certain in the matter is, that a calculus has been extracted from the perineum, the urethra remaining perfectly sound. Earthy concretions are sometimes formed in other parts of the body, and might be so too in this situation; but analysis, which it is to be hoped Dr. Hunter will have performed in this instance, will decide this point.

On the same day on which the preceding operation was performed, a scirrhous breast was removed; and a tumour of Dr. Campbell's diagnostic manufacture, was instantaneously converted into a chronic abscess of the side, by a puncture of Dr. Hunter's lancet; and on Friday an eye, in the case of a child, was attempted to be extirpated by Dr. Ballingal. The disease was supposed to be malignant, and the extirpation of the entire globe consequently intended. Matters, however, not proceeding in the course of the operation as satisfactorily as might be expected, a section only of about two-thirds of the ball was removed. A piece of sponge being inserted in the orbit to stop the hæmorrhage, the operator, while washing his hands, and looking not unlike Lady Macbeth on a similar occasion, informed the spectators in a tone of moody abstraction, "that he was happy to find that the disease was not of a fungous nature, and that owing to some difficulty in passing the scalpel behind the globe, a portion of it only was removed."

SCOTUS.

Edinburgh, April 7, 1827.

HOSPITAL REPORTS.

HOSPITAL OF SURGERY.

Panton Square, St. James's.

ANEURISM OF THE ARTERIA INNOMINATA.

THERE is a distinct and strongly pulsating swelling immediately above the sternum, which, on examination, seems to arise from a very considerable enlargement of the arteria innominata. The common trunk of the right carotid artery does not pulsate with more than half the force of the carotid artery of the left side. There is an equal disparity in the strength of the pulsations of the branches of the external carotid arteries of the two sides. The pulse, at the wrist of the right arm, is stronger than the pulse of the left arm. Complains of occasional giddiness, and of bodies appearing to float before her eyes; complains also of a weakness in her right arm, with inability to use the hand freely. Her countenance expresses much anxiety. She cannot sleep on her right side, and is obliged to have her head raised higher than usual, when in bed.

About twelve months ago, she complained of what she conceived to be rheumatic pains affecting the right side of her head, neck, and shoulder; these pains varied in degree on different days, and at different periods of each day, but never altogether ceased. About two months ago, whilst washing her neck, she accidentally perceived a throbbing on the right side and lower part of the neck, which, since that period, has gradually become more violent.

March 20. To be bled to ℥x.

℞ *Pulv. fol. digitalis*, gr. iv.;
Ext. colocynth. comp. ℈ij. ft. pil. xii.
One pill to be taken night and morning.

21. Has derived considerable benefit from the bleeding; the throbbing and pain in the right side of the head and shoulder are diminished; the pulsation in the anterior part of the neck is also less. The blood is strongly buffed. Bowels confined. Pulse 84, and softer.

24. Experienced considerable pain in the head and shoulder yesterday. Pulse wiry and thrilling; bowels open. To be bled to ℥viij.

26. Was suddenly seized with faintness this morning at six o'clock, which continued about four minutes. Pulse soft; blood still buffed.

29. Feels much better; catamenia present; omit the pills.

April 3. To commence the pills again.

5. Since she applied at the Hospital, her health has improved, and she says the "rheumatic pains" in her head and shoulder are less; the pulsation in the neck is evidently diminished; there is considerable tenderness, on making pressure above the sternal extremity of the clavicle. Pulse has still a thrill, and there is a manifest difference in the force of the pulsations of the two carotids.

Several operations have been recently performed at this Hospital, with his usual dexterity, by Mr. BELL.

CANCER AFFECTING THE BONES.—MORBID ANATOMY.

The morbid specimens here described, together with a note of the patient's case, were sent by Mr. Allen, Surgeon, of Epsom.

1. "A portion of the thigh-bone, rendered so thin and fragile, that there is an actual comminuted fracture about two inches below the trochanter minor, which happened when the patient was merely turning in bed, about three weeks before her death; the bone above and below the fractured part being of its natural structure.

2. "The left clavicle, which was also fractured by the patient's moving in bed about two months before her death, now united by an ossific union.

"A cancerous tumour on the right clavicle, resembling large lymphatic glands, converted into cartilage, and adhering to the substance of the bone, the periosteum of which is much thickened, and converted into a substance somewhat resembling cartilage.

"The ribs are as thin as egg shells, and easily broken by the slightest force.

"The heart was extremely thin, and readily torn upon handling it, and the pericardium adhered to the whole of its surface. The cavities of the pleura contained between two and three quarts of a serous fluid; the lungs were light, free from tubercles and adhesions, but small thin bodies of the cartilaginous kind were felt on pinching a portion of the lung between the finger and thumb; these were very small, and not thicker than a shilling."

"The spine exhibited no mark of disease."

History of the Disease.—"The patient was 61 years of age, and unmarried; 12 years ago, a small tumour, supposed to be *cancerous*, was removed from her right mamma. Subsequently to that period, she continued to enjoy good health until about three years and a half ago, when she began to feel a weakness in her back, so that in walking she felt as if she were forcibly doubled forward, with a sense of uneasiness about the diaphragm. The spine was several times examined, but no curvature detected. The complaint was treated as rheumatic, but became worse and worse, and for the last twelve months the patient had been entirely bed ridden."

COMPLETE OBLITERATION OF THE DUCTUS COMMUNIS CHOLEDOCHUS.

The preparation, with the subsequent note of the dissection and case, was sent by Mr. Mackelcan.

Abdomen.—"Liver much enlarged, with numerous white spots, which when cut into resembled scirrhous tubercles, some were of the size of a walnut; at the anterior part of the viscus, the substance of it between these formations was hard, presenting the appearance commonly termed the "nutmeg liver;" at the posterior part it was soft, and easily lacerated. *The gall bladder* twice its natural size, its duct half an inch in diameter; the hepatic about the same size, and the ductus choledochus at least one inch in diameter. On tracing it towards the duodenum, it was found to terminate abruptly in the centre of a firm compact tumour situated in the great end of the *pancreas*. This tumour was of the size of an orange; when cut into, pus issued from several points, but in small quantities; it had obliterated the pancreatic as well as the biliary duct.

"The intestines were healthy in structure, but at one part about two feet of the ileum was much contracted, and bound down to the mesentery by adhesions between the different parts of the peritoneum, in such a way as to form very acute angles, and apparently to prevent any thing passing along its canal without the greatest difficulty."

Chest.—"The cavities of the heart considerably dilated, the parietes thinner than natural, and so soft that the finger could be pushed through them without much difficulty. The arch of the aorta dilated to twice its natural size, and in an advanced state of ossification; the lining membrane of

that vessel being destroyed over nearly the whole surface."

"*Lungs*—sound, structure tinged with bile."

Head.—"Dura mater deep yellow, about an ounce of bloody serum between it and the arachnoid coat, which latter was thickened and opaque; *pia mater* tinged with yellow, lateral ventricles, large, and each containing about one ounce and a half of fluid substance of the brain, of its natural colour."

History of the Disease.—"The patient, an elderly man, who had been addicted to drinking largely of spirits during the early and middle periods of his life, became affected with jaundice, which, after three months duration, put an end to existence. The most marked symptoms during this period, were uneasiness in the epigastrium, pain in the right side increased on pressure below the edges of the ribs, where the liver could be felt enlarged, extending considerably from out the hypochondrium; an obstinately constipated state of the bowels, with constant tenesmus, and clay-coloured fæces; urine having the appearance of turbid porter; pulse not remarkably changed from the healthy character. All the means recommended for the relief of this disease were resorted to, without checking its progress; and during the latter part of its course the patient's skin was of a dirty and dark yellow colour, approaching to that which has been called the "black jaundice."

GUY'S HOSPITAL.

CASE OF FISTULA IN PERINEO, SUCCESSFULLY TREATED.

G. B., ætat. 50, was admitted into Lazarus' Ward, under the care of Mr. Morgan, on the 10th of January.

The account which the patient gave was, that he had a firm stricture of the urethra two years ago, which occasioned much difficulty to him in passing his urine. He was attacked with complete retention of urine, after a debauch, and six weeks afterwards an abscess formed in the perineum, which eventually burst, leaving a fistulous opening, through which the urine continued to be discharged to the period of his admission into the Hospital.

Mr. Morgan first passed a catheter, and thereby ascertained that very little obstruction existed in the passage of the urethra. The fistulous opening was immediately posterior to the scrotum, and it was ascertained by a probe that the sinus was tortuous in its course. There was considerable thickening of the integuments of the perineum and back part of the scrotum. Mr. Morgan freely laid open the sinus with a bistoury, dividing it (as nearly as could be ascertained from the diseased state of parts) to its termination in the urethra. An elastic gum catheter was then introduced, and the patient was directed to wear it constantly. The operation did not prove successful in its result, for we found, on examining the patient three weeks afterwards with Mr. Morgan, that the urine still continued to dribble through the opening in the perineum, notwithstanding the catheter had been constantly worn. The wound had nearly closed externally, but Mr. Morgan surmising that the healing process at the bottom of the wound might be prevented by the presence of the instrument acting as an extraneous body, directed it to be withdrawn. The patient, therefore, remained for some time without a catheter in his bladder. It was found, however, that the urine still passed by the perineum, a small opening remaining at this part. In consequence of this, Mr. Morgan determined on freely laying open the parts a second time; this was done, and the wound (as in the first instance) dressed with lint. The elastic gum catheter was retained in the bladder as before.

The case, from this time, went on favourably, and at the expiration of about three weeks the catheter was removed, when it was found that a cure had been effected, as regards the flow of urine through the perineum. The wound had granulated kindly, but had not completely healed; it gradually closed, and in the course of a short time the patient was reported quite well, and left the Hospital.

OPERATIONS.

The operations performed since our last report are—castration, by Mr. Key, in consequence of fungoid disease of the testicle.—Amputation of the arm above the elbow, by Mr. B. Cooper. The patient, in the latter case, was a middle-aged man, and had been affected with disease of the elbow-joint upwards of three years. There were several sinous openings communicating with the joint, and the general health was suffering so much that amputation had become imperatively necessary. Two flaps were made, the one anterior and the other posterior; there were no particular circumstances attendant upon the operation, except that after having thrust a *double-edged* catlin down to the bone, and endeavouring to cut outwards and downwards, so as to form the first flap, Mr. Cooper found that the instrument would not cut in the slightest degree; it was therefore withdrawn, and another knife was used to complete the operation. The delay thus occasioned, and the

consequent increase of suffering to the patient, was in our minds highly disgraceful. Mr. Laundy, the instrument maker, (who is always in attendance at the operations) coolly remarked, that the said *double-edged* cutlin was only sharp on one side. If Mr. Laundy could *sharpen* himself at the same time that he *sharpens* his instruments, he would effect a desirable object.

On Tuesday, March 27, Mr. Callaway, the assistant-surgeon, made his debut as an *operative*, Mr. Morgan kindly *permitting* him to remove a chronic tumour from the breast of a female. The operation was performed dexterously.

Mr. Callaway, on the same day, also operated for hare-lip on a child.

N. B. A notice of the said operations was posted, which stated they were to be performed at half-past twelve o'clock; they were, however, completed by that period, to the annoyance and disappointment of a considerable number of pupils.

OPHTHALMITIS AND SUPERFICIAL ULCERATION OF THE CORNEA.

J. Dixon, ætat. 18, a chimney-sweep, was admitted into Samaritan's Ward on the 24th of February, under the care of Mr. Morgan, on account of disease of the left eye.

The patient stated that the eye had been affected with inflammation at different periods since Christmas, being alternately better and worse. For the last three weeks previous to admission the symptoms had been very distressing.

On examining the eye, general increased vascularity was very perceptible, and on close inspection the large tortuous vessels of the conjunctiva were distinguished from the smaller and deeper-seated vessels of the sclerotica, which were running in straight lines from the whole periphery of the globe to the base of the transparent cornea, and there forming a zone. The lower half of the cornea was opaque, and of a white or greyish colour, and there was a depression of the size of a barley-corn on its surface, as if one thin lamella had been removed; the upper part of the cornea was hazy, and the pupil, as seen through it, appeared to be irregularly shaped, being of an oval form, and having its long axis placed obliquely; the iris had an unnatural colour. The patient complained of pain, with a sense of tension in the eye-ball, and of severe pain across the forehead and eyebrows; he had intolerance of light in a marked degree, with a constant flow of scalding tears. There was considerable febrile disturbance; the pulse quick and sharp, and the tongue furred.

Mr. Morgan, on visiting the patient, remarked, that in addition to the inflammation and superficial ulceration of the cornea, the internal tunics were also affected with inflammation. The change of figure in the pupil, and the appearance of the iris, clearly showed that this membrane, at least, participated in the affection.

Ordered three grains of calomel and one grain of opium, to be taken three times a day; six leeches to be applied to the left temple, and afterwards a blister; the extract of belladona to be applied round the eye.

26. Increase of vascularity in the eye; the symptoms were temporarily alleviated by the measures directed on the 24th. Ordered to be bled from the arm to the amount of ten ounces, and to be cupped to a like amount. The calomel and opium to be steadily continued.

27. The symptoms somewhat alleviated; the cornea has the same appearance as described on the patient's admission. Mr. Morgan to-day directed the ulcer to be touched with the nitrate of silver.

March 1. Repeat the application of the caustic. The mouth is now much affected with the calomel. Ordered to take the pills twice a-day, in lieu of three times.

3. Appearance of the eye much the same. Repeat the caustic.

7. The caustic has been applied daily since the last report; in consequence of which, it is impossible to judge accurately of the state of the lower part of the cornea. The ulcer, which is covered with a whitish film, produced by the application of the escharotic, apparently has not extended. The upper half of the cornea continues hazy, and there is much uneasiness felt on exposure to light, with increased lachrymal discharge; but the vascularity of the conjunctiva, and of the sclerotica, is diminished. The pills have been omitted during the last two days, in consequence of profuse ptyalism having been produced, and Mr. Morgan prescribed on the 5th a drachm of the solution of subcarbonate of ammonia (P. L.) to be taken three times a-day, in a wine glassful of decoction of bark.

13. The symptoms greatly aggravated since the last report; the vascularity of the eye excessive; the pain and intolerance of light very great. The lower part of the cornea is not changed in appearance, but the upper half is much more opaque. Ordered to apply ten leeches to the eye every night; to take two grains of calomel and one grain of opium night and morning. A blister to be applied to the nape of the neck, and equal parts of laudanum, with warm water, to be used as a fomentation to the eye.

18. Much relieved; continue the remedies.

24. The vascularity has greatly diminished, and also the opacity of the upper portion of the cornea; the lower part continues dull and of a whitish colour. There

is a slight appearance of a fovea or depression remaining, but the extent of this is very limited; the pupil is now of its regular shape, and the iris has assumed its natural colour.

April 1. The improvement since the last report has been progressive, and all that now remained of disease in the eye, consisted of an opacity of the lower part of the cornea, occasioned by the cicatrix of the ulcer. This, however, being confined to the superficial lamellæ, is of very slight density (appearing to be merely a thin film,) and interferes but little with vision, which has now become tolerably perfect. Mr. Morgan has directed a lotion of the nitrate of silver, in the proportion of one grain to an ounce of water, to be dropped in the eye daily; the belladonna has been omitted for some time, but the pupil continues much larger than that of the opposite eye. It is, however, obedient to light, and free from all morbid adhesions.

The patient will leave the Hospital in the course of a few days.

CASE OF DISEASE OF THE LARYNX, SUCCESSFULLY TREATED.

J. Gilbert, 34 years of age, of spare habit and unhealthy appearance, was admitted into Luke's Ward, on the 28th of February, under the care of Mr. B. Cooper.

The patient stated on admission, that he had been ill about six months; he first found a slight soreness of the throat, with a difficulty in swallowing solids; these symptoms increased, and in the course of a few weeks, he was troubled with a cough, more especially when making attempts to swallow. Blisters and leeches were applied to the throat, without benefit; and various kinds of gargles were made use of. His general health suffered much; he became emaciated, and his strength failed. When admitted, he spoke in a hoarse whisper; he had great difficulty of deglutition, not only from the pain experienced in the glottis and extending to the root of the ears, but also from the tickling cough which was produced in the attempt to swallow. Fluids seemed to provoke the coughing greatly, and the patient stated they were for the most part thrown back. There was absorbent glandular enlargement, beneath the ears and under the lower jaw on each side. The man complained of much pain when pressure was made on the thyroid cartilage: he had not spit up any bloody or purulent matter, according to his own account. On looking into the throat, there was nothing unnatural to be remarked—no appearance of disease, but on passing the finger far backward, it appeared to us that the epiglottis had a thickened diseased feel, although the irritation produced so much coughing that it it was difficult clearly to ascertain this point.

The man declared that he had not laboured under any form of venereal disease for several years past, but he showed some superficial ulcers on the left arm, having an unhealthy appearance, being, in fact, what might be termed cachectic sores. The patient had been employed at the Veterinary College, and had had the management of some horses affected with the disease called *farcy*; he was in consequence strongly impressed with an opinion that he had imbibed the disease. The treatment directed was as follows:—a blister to be applied to the throat, and to be dressed with savine ointment.

Extract of sarsaparilla, one drachm;
Solution of the oxymuriate of mercury, one drachm.

Decoction of sarsaparilla, four ounces, to be taken three times a day.

Plummer's Pill, five grains.
Extract of henbane, five grains, every night.

The yellow wash to be applied to the sores on the arm.

On the 9th of March very little improvement had taken place; there was no alteration in the tone of voice: ordered to take

Blue Pill, five grains.
Opium, half a grain, night and morning.

The former pills to be omitted, and to continue the mixture.

13. The patient says that he is improved in health, and the throat is not so sore. He was directed on the 13th, to use the following farrago, entitled, "Mr. Cooper's gargle."

Muriatic acid, 10 *drops;*
Oxymuriate of mercury, 3 *grains;*
Syrup of poppies, 1 *ounce;*
Lime water, 8 *ounces.* Mix.

18. Deglution much less difficult, and cough far less troublesome. The appearance of the patient indicates considerable amendment to have taken place in his general health. The mouth and gums are slightly sore. His blisters healed.

A few days after the above report, the man was attacked with pain in the right side felt, on inspiration, about the 5th and 6th ribs. Cupping was had recourse to without much benefit, and therefore blood was abstracted from the arm, which afforded decided relief. He was directed to omit the blue pill and opium, and to take, *two grains of calomel,* with *half a grain of tartar-emetic,* and *five grains of extract of hemlock,* at bed-time.

On the 30th of March, we found, on visiting the patient, that he was able to converse in a loud tone of voice, not unmingled, however, with slight hoarseness. He left on the 3d of April, quite well.

ST. THOMAS'S HOSPITAL.

EFFICACY OF THE CHLORATE OF SODA (USED AS A GARGLE) IN CASES OF PTYALISM.

The singular efficacy of the chlorate of soda in checking salivation, appears to be but little known. That it is a most valuable remedy in arresting the progress of salivation, we can assert with confidence, from having observed within the last few months a vast number of cases in which it has been employed by Dr. Elliotson. In many of these cases there has been what is termed "profuse salivation," but in every instance, it was subdued in the course of a day or two by a diligent use of the remedy.

Dr. Elliotson generally directs equal parts of a saturated solution of the chlorate (procured from Garden's) and water, to be used as a gargle, frequently; in some few instances it has been found necessary to make a further dilution. Dr. Elliotson was led to adopt this plan of treatment on the recommendation of Dr. Darling, who published a paper on the uses of chlorate of soda, about twelve months ago, which may be found in the 9th Volume of this Journal.

CASE OF IMPERFECT AMAUROSIS OF THE RIGHT EYE—OPACITY OF THE CORNEA OF THE LEFT EYE.

George's Ward, No. 8. William Catter, about 30 years of age, a bricklayer, was admitted on the 25th of January, under the care of Mr. Green.

The report of the patient's case when admitted, was entered as follows:—Chronic inflammation of the cornea of the left eye, with central opacity of the cornea, of long standing. Incipient amaurosis of the right eye, the globe appears distended, and the vessels of the sclerotic are more filled than natural; pain over the eyebrow. The iris is sluggish in its movements. The vision of the left eye is gone, having been destroyed during the progress of small-pox, when the patient was young; the right eye has been affected about five months, and the power of vision is now very small; it simply amounts to the discernment of objects passing before him, without his being able to ascertain their nature. When first the eye became affected, the appearance of muscæ volitantes was painfully distressing; this symptom has ceased for some time.

The treatment pursued in this case, was as follows:—

January 26. Cupping on the right temple, to the amount of twelve ounces; one grain of calomel with five grains of Dover's powder at bed time, and tepid fomentations to the left eye.

29. Eight leeches to the left temple, one grain of calomel, with a quarter of a grain of opium, twice a day.

A report made on the 12th of February, states that the vision of the right eye is slightly improved, and the patient has less pain over the eyebrow; the inflammation of the left eye is greatly lessened. The calomel and opium were discontinued for a short time, in consequence of the bowels being disturbed, but on the 19th, Mr. Green prescribed five grains of blue-pill, and a quarter of a grain of opium, to be taken twice a-day.

On the 28th, the mouth not being affected, the dose of blue-pill was increased to ten grains, after which a slight mercurial action was set up and continued for some time.

On the 4th of March, a seton was inserted in the back of the neck, and as soon as a free discharge commenced, the patient expressed himself relieved. The power of vision in the right eye was, however, very feeble.

On the 20th of March the patient left the Hospital of his own accord. A few days afterwards, he was brought into the Hospital with a severe lacerated wound of the scalp, obtained in some drunken affray. We found upon inquiry, that he had been in a state of intoxication, from the time he went out of the Hospital, and *he declared that his vision was much improved by this stimulating plan of treatment*!

AMPUTATION AT THE SHOULDER-JOINT.

This operation was performed by Mr. Tyrrell, on Friday the 16th inst. The patient, a middle aged man, was admitted into the Hospital a few weeks since, with a comminuted fracture of the right humerus, and great contusion of the soft parts. The limb became affected with erysipelatous inflammation, and most extensive sloughing of the cellular membrane and integuments of the whole arm ensued. The patient's health suffered so much in consequence, that he became greatly reduced, and amputation was had recourse to as the only means of saving his life.

The operation was performed by making a single flap from the deltoid muscle. The incision, in order to form this flap, was commenced at the inside of the joint, and carried downwards to the fore part of the humerus, where it was met by a corresponding incision made from the outside of the joint. The flap was dissected upwards, the head of the bone exposed, and its attachments cut away, when the capsular ligament was opened, and Mr. Tyrrell, passing a long knife behind the head of the bone, and cutting obliquely downwards, completed the operation, thus dividing the vessels and nerves at last. Very little blood was lost; the artery was compressed above the clavicle by Mr. Green.